

the ErbB4 receptor in vivo and in vitro. They can be used to prevent or treat damage to a nerve or damage to other NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney cells. In particular, they can be used to treat diseases which involve neural cell growth such as demyelination, or damage or loss of glial cells (e.g. multiple sclerosis). They can be used to treat patients whose nervous system has been damaged by e.g. trauma, surgery, stroke, ischemia, infection, metabolic disease, nutritional deficiency, malignancy, or toxic agents. NRG3 can also be used to treat motor neuron disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease), Bell's palsy, conditions involving spinal muscular atrophy or paralysis, neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's syndrome, nerve deafness, and Meniere's disease. They can also be used to treat neuropathies associated with systemic disease including post-polio syndrome, Refsum's hereditary neuropathies including Charcot-Marie-Tooth disease, Refsum's disease, abetalipoproteinemia, Tangier disease, Krabbe's disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-Scott's syndrome, to treat disease of skeletal muscle of smooth muscle, such as muscular dystrophy or diseases caused by skeletal or smooth muscle wasting. The products can also be used for detection, diagnosis, for the production of transgenic or knockout animals or for drug screening. A claimed immunodhesin comprises the human NRG3 EGF-like domain fused to an immunoglobulin sequence

SQ Sequence 47 AA;

Query Match 100.0%; Score 277; DB 2; Length 47;
Best Local Similarity 100.0%; Pred. No. 7.5e-21;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HFKPCRDKLAYCLNDGECFVETLTGSHKRCCKEGYGVACDQFL 47
1 HFKPCRDKLAYCLNDGECFVETLTGSHKRCCKEGYGVACDQFL 47

Dk

RESULT 2
AAG66046
ID AAG66046 standard; peptide; 48 AA.

AC AAG66046;

DT 27-FEB-2002 (first entry)

DE Mouse NRG-3 EGF-like motif sequence.

ErBb-4; neuregulin-4; NRG-4; pro-NRG-4; neuroprotective; vulnerrary;
cerebroprotective; vasotrophic; antiparkinsonian; anticonvulsant;
cytostatic; nootropic; EGF; NRG-3.

OS Mus musculus.

PN W0200181540-A2.

PD 01-NOV-2001.

PF 20-APR-2001; 2001WO-11000371.

PR 21-APR-2000; 2000US-00553769.

PA (YEDA) YEDA RES & DEV CO LTD.

PI Harari D, Yarden Y;

DR WPI; 2002-041398/05.

Novel ErbB-4 ligand, referred as neuregulin (NRG)-4 and polynucleotide
sequences encoding NRG-4, useful for upregulating or downregulating ErbB-
4 receptor activity to treat Alzheimer's disease, stroke, gastric cancer.
Disclosure; Fig 1c; 153pp; English.

The invention relates to a novel ErbB-4 ligand, neuregulin-4 (NRG-4). NRG

-4 binds to mammalian ErbB-4 receptor and can be expressed by standard recombinant methodology. Pharmaceutical compositions comprising NRG-4 are useful for regulating an endogenous protein affecting ErbB-4 receptor activity in vivo. They are also useful for treating or preventing a disease condition or syndrome associated with dysregulation of an endogenous protein affecting ErbB-4 receptor activity, e.g., amyotrophic lateral sclerosis (Lou Gehrig's disease), Bell's palsy, spinal muscular atrophy, brain trauma, stroke, ischemia, Alzheimer's disease, Parkinson's disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's syndrome, nerve deafness, neuropathy, muscular dystrophy, extramammary Paget's disease, gastric, pancreatic, prostate, breast and ovarian cancer, cervical carcinoma, endometrial adenocarcinoma, pancreatic D cells-somatostatinoma and Zollinger-Ellison syndrome. The agent comprised in the pharmaceutical composition includes a polypeptide (e.g., a soluble ligand binding domain of ErbB-4 1.e., 1954; or a monoclonal, polyclonal, humanized, single chain antibody or an immunoreactive derivative of an antibody) capable of binding the endogenous protein affecting ErbB-4 receptor activity. Traceable synthetic/recombinant NRG-4-tagged molecules can serve as a diagnostic tool in which cells binding NRG-4 can be measured. Sequences AAG66044-53 represent the EGF-like motifs of various growth factors

SQ Sequence 48 AA;

Query Match 100.0%; Score 277; DB 5; Length 48;
Best Local Similarity 100.0%; Pred. No. 7.6e-21;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HFKPCRDKLAYCLNDGECFVETLTGSHKRCCKEGYGVACDQFL 47
2 HFKPCRDKLAYCLNDGECFVETLTGSHKRCCKEGYGVACDQFL 48

Db

RESULT 3
AAE36807
ID AAE36807 standard; protein; 52 AA.

AC AAE36807;

DT 07-AUG-2003 (first entry)

DE Human neuregulin 3 EGF-like domain.

Epidermal growth factor receptor; EGFR; therapy; psoriasis; carcinoma;
cancer; rhabdomyosarcoma; mesothelioma; melanoma; glioblastoma; human;
receptor; EGF; neuregulin 3.

OS Homo sapiens.

PN W02003014159-A1.

PD 20-FEB-2003.

PF 05-AUG-2002; 2002WO-AU001042.

PR 03-AUG-2001; 2001AU-00006827.

PR 03-AUG-2001; 2001AU-00006828.

PR 01-NOV-2001; 2001US-0335393P.

PR 01-NOV-2001; 2001US-0335393P.

PR 31-MAY-2002; 2002AU-00002731.

PR 11-JUN-2002; 2002US-0388171P.

PA (CSTR) COMMONWEALTH SCI & IND RES ORG.

PA (BIOM-) BIOMOLECULAR RES INST LTD.

PA (HALL-) HALL INST MEDICAL RES WALTER & ELIZA.

PA (LUDW-) LUDWIG INST CANCER RES.

PI Adams TE, Burgess AM, Elleman TC, Garrett TPJ, Jorissen RN;

PI Lou M, Lovrecz GO, McKern NM, Nice EC, Ward CW;

DR WPI; 2003-268181/26.

Selecting or designing compounds that interact with or inhibit formation

PT	of active dimers of the EGF receptor family, and useful for the
PT	prevention and treatment of disorders, such as psoriasis and cancer of
PT	the breast, brain or colon.
XX	
XX	Disclosure; Fig 2; 354pp; English.
CC	
CC	The invention relates to a method of selecting or designing a compound
CC	that interacts with or inhibits the formation of active dimers of a
CC	receptor of the epidermal growth factor receptor (EGFR) family. The
CC	methods and compositions of the invention are useful for the prevention
CC	and treatment of disorders associated with signalling by a molecule of
CC	the EGFR family such as psoriasis and cancer of the pancreas, breast,
CC	brain, colon, prostate, ovary, cervix, lung, head and neck, melanoma,
CC	glioblastoma, mesothelioma, squamous carcinomas of the skin and
CC	domain of human neueregulin 3 protein. This sequence is used to illustrate
CC	the method of the invention
XX	
XX	Sequence 52 AA:
XX	
QY	Query Match 100.0%; Score 277; DB 6; Length 52;
	Best Local Similarity 100.0%; Pred. No. 8.2e-21;
Db	Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
	1 HFKPRRDLDLAVCLNDGECFYIETLTGSHKCRCKEYQGVRCDOFL 47
	2 HFKPRRDLDLAVCLNDGECFYIETLTGSHKCRCKEYQGVRCDOFL 48
RESULT 4	
ID	AAV05451 standard; protein; 157 AA.
XX	AAV05451;
AC	
XX	AAV05451;
DT	06-JUL-1999 (first entry)
XX	
DE	Human heregulin-like factor sequence.
XX	
KY	Human heregulin-like factor; HLF; cell growth regulator; diagnosis;
KW	neural system disorder; cancer.
XX	
OS	Homo sapiens.
XX	
PN	WO9857989-A1.
XX	
PD	23-DEC-1998.
XX	
PF	16-JUN-1998; 98WO-US012403.
XX	
PR	17-JUN-1997; 97US-0049942P.
XX	
PA	(HUMA-) HUMAN GENOME SCI INC.
XX	(GEOU) UNIV GEORGETOWN.
XX	
PI	Young P, Ruben SM, King CR, Hijazi MM;
XX	
DR	WPI: 1999-095327/08.
XX	
DR	N-PSTDB; AAX36423.
XX	
PT	New isolated heregulin-like factor - used to develop products for the
PT	diagnosis and treatment of disorders involving regulation of cell growth,
PT	particularly cancers.
XX	
PS	Claim 17; Page 86-87; 118pp; English.
XX	
CC	This sequence is the human heregulin-like factor (HLF) of the invention.
CC	The HLF is involved in the regulation of cell growth. Detection of
CC	different levels of expression of the HLF gene can be used for the
CC	diagnosis of disorders, e.g. in the neural system. In particular,
CC	detection of different levels of HLF gene expression in cells or body
CC	fluid of an individual can be used for diagnosing cancer. The products
CC	can also be used in the treatment of disorders involving abnormal levels

CC		of HLF activity
XX		
SQ	Sequence 157 AA:	
OY		
DB		
Query Match	100.0%; Score 277; DB 2; Length 157;	
Best Local Similarity	100.0%; Pred. No. 2.3e-20;	
Matches	47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	
1	HFRCRDKDLAYCLNDGECFYIETLTGSHKCRCKEGYGVRCDQFL	47
31	HFRCRDKDLAYCLNDGECFYIETLTGSHKCRCKEGYGVRCDQFL	77
RESULT 5		
ADN48870		
ID	ADN48870 standard; protein; 157 AA.	
AC	ADN48870;	
DT	15-JUL-2004 (first entry)	
DE	Human heregulin-like factor (HLF) protein.	
KW	HLF; heregulin-like factor; diagnosis; cancer; gene therapy; human.	
OS	Homo sapiens.	
FH	Key Location/Qualifiers	
FT	Domain 26..93	
FT	/note = EGF domain	
US	US6727077-B1.	
PD	27-APR-2004.	
PE	16-JUN-1998; 98US-00097681.	
PR	17-JUN-1997; 97US-0049492P.	
PA	(HUMA-) HUMAN GENOME SCI INC.	
PA	(GEOU) UNIV GEORGETOWN MEDICAL CENT.	
PI	Young PE, King CR, Hijazi M, Ruben SM;	
DR	WPI; 2004-338520/31.	
DR	N-PSDB; ADN48869.	
PT	New heregulin-like factor (HLF) nucleic acid or polypeptide, useful for preparing a composition for diagnosing or treating cancer.	
PS	Claim 1; SEQ ID NO 2; 48pp; English.	
CC	The present invention relates to novel heregulin-like factor (HLF) polypeptides and the encoding polynucleotides. The invention is useful for preparing a composition for diagnosing and treating cancer. The invention is also useful in gene therapy. The present sequence is human heregulin-like factor (HLF) protein.	
SQ	Sequence 157 AA:	
Query Match	100.0%; Score 277; DB 8; Length 157;	
Best Local Similarity	100.0%; Pred. No. 2.3e-20;	
Matches	47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	
OY		
DB		
1	HFRCRDKDLAYCLNDGECFYIETLTGSHKCRCKEGYGVRCDQFL	47
31	HFRCRDKDLAYCLNDGECFYIETLTGSHKCRCKEGYGVRCDQFL	77
RESULT 6		
AAM97621		
ID	AAM97621 standard; protein; 360 AA.	
XX		

AAW97621;
10-MAY-1999 (first entry)
Human neuregulin related ligand NRG3 extracellular domain.
Neuregulin related ligand; NRG3; hNRG3B1; human; ErbB4 receptor;
signal transduction; nervous system disorder; neurodegeneration;
neuropathy; therapy; diagnosis.
Homo sapiens.
WO9902681-A1.
21-JAN-1999.
30-JUN-1998; 98WO-US013411.
09-JUL-1997; 97US-0052019P.
24-JUL-1997; 97US-00899437.
(GENTH) GENENTECH INC.
Godowski PJ, Mark MR, Zhang D;
WPI; 1999-120882/10.
New isolated neuregulin related ligand-3 - used to develop products for
treating nervous system disorders, e.g. stroke, ischaemia, infection,
malignancy, Alzheimer's disease or Down's syndrome.
Claim 5(a); Page 69-70; 101pp; English.
This is the extracellular domain (ECD, aa1-360 of human neuregulin
related ligand NRG3 (see also AAW97618), a novel member of the epidermal
growth factor (EGF)-like family of protein ligands. NRG3 binds to the
ErbB4 receptor, but not to the ErbB2 or ErbB3 receptor, activates ErbB4
receptor tyrosine phosphorylation. The invention provides human and
murine polypeptides (see also AAW97617) that have at least 75% homology
to the NRG3 ECD, as well as expression vectors, host cells and methods
for the recombinant production of novel NRG3s. The NRG3 polypeptides and
polynucleotides and can be used to enhance the survival, proliferation or
differentiation of cells having the ErbB4 receptor in vivo and in vitro.
They can be used to prevent or treat damage to a nerve or damage to other
NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney
cells. In particular, they can be used to treat diseases which involve
neural cell growth such as demyelination, or damage or loss of glial
cells (e.g. multiple sclerosis). They can be used to treat patients whose
nervous system has been damaged by e.g. trauma, surgery, stroke,
ischaemia, infection, metabolic disease, nutritional deficiency,
malignancy, or toxic agents. NRG3 can also be used to treat motor neuron
disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
neurodegenerative disorders such as Alzheimer's disease, Parkinson's
disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
syndrome, nerve deafness, and Meniere's disease. They can also be used to
treat neuropathies associated with systemic disease including post-polio
syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
Reifsum's disease, abetalipoproteinemia, Tangle disease, Krabbe's
disease, metachromatic leukodystrophy, Fabry's disease and Deterline-
Scotts syndrome, to treat disease of skeletal muscle of smooth muscle,
such as muscular dystrophy or diseases caused by skeletal or smooth
muscle wasting. The products can also be used for detection, diagnosis,
for the production of transgenic or knockout animals or for drug
screening
Sequence 360 AA:

Query Match 100.0%; Score 277; DB 2; Length 360;
Best Local Similarity 100.0%; Pred. No. 4.8e-20;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
1 HFKPCRDLDLAVCLNDGECFVETLTGSHKRCCKEGYGVRCDOFL 47

DB 286 HFKPCRDLDLAVCLNDGECFVETLTGSHKRCCKEGYGVRCDOFL 332

RESULT 7
AAW97620
ID AAW97620 standard; protein; 362 AA.
XX
AC AAW97620;
XX
DT 10-MAY-1999 (first entry)
XX
DE Mouse neuregulin related ligand NRG3 extracellular domain.
XX
KW Neuregulin related ligand; NRG3; mouse; ErbB4 receptor;
KW signal transduction; nervous system disorder; neurodegeneration;
KW neuropathy; therapy; diagnosis.
XX
OS Mus sp.
XX
PN WO9902681-A1.
XX
PD 21-JAN-1999.
XX
PF 30-JUN-1998; 98WO-US013411.
XX
PR 09-JUL-1997; 97US-0052019P.
XX 24-JUL-1997; 97US-00899437.
XX
PA (GENTH) GENENTECH INC.
XX
PI Godowski PJ, Mark MR, Zhang D;
XX
DR WPI; 1999-120882/10.
XX
PT New isolated neuregulin related ligand-3 - used to develop products for
PT treating nervous system disorders, e.g. stroke, ischaemia, infection,
PT malignancy, Alzheimer's disease or Down's syndrome.
XX
PS Claim 5(a); Page 62-63; 101pp; English.
XX
XX This is the extracellular domain (ECD, aa1-362) of murine neuregulin
XX related ligand NRG3 (see also AAW97617), a novel member of the epidermal
XX growth factor (EGF)-like family of protein ligands. NRG3 binds to the
XX ErbB4 receptor, but not to the ErbB2 or ErbB3 receptor, activates ErbB4
XX receptor tyrosine phosphorylation. The invention provides human and
XX murine polypeptides (see also AAW97618) that have at least 75% homology
XX to the NRG3 ECD, as well as expression vectors, host cells and methods
XX for the recombinant production of novel NRG3s. The NRG3 polypeptides and
XX polynucleotides and can be used to enhance the survival, proliferation or
XX differentiation of cells having the ErbB4 receptor in vivo and in vitro.
XX They can be used to prevent or treat damage to a nerve or damage to other
XX NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney
XX cells. In particular, they can be used to treat diseases which involve
XX neural cell growth such as demyelination, or damage or loss of glial
XX cells (e.g. multiple sclerosis). They can be used to treat patients whose
XX nervous system has been damaged by e.g. trauma, surgery, stroke,
XX ischaemia, infection, metabolic disease, nutritional deficiency,
XX malignancy, or toxic agents. NRG3 can also be used to treat motor neuron
XX disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
XX Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
XX neurodegenerative disorders such as Alzheimer's disease, Parkinson's
XX disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
XX syndrome, nerve deafness, and Meniere's disease. They can also be used to
XX treat neuropathies associated with systemic disease including post-polio
XX syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
XX Reifsum's disease, abetalipoproteinemia, Tangle disease, Krabbe's
XX disease, metachromatic leukodystrophy, Fabry's disease and Deterline-
XX Scotts syndrome, to treat disease of skeletal muscle of smooth muscle,
XX such as muscular dystrophy or diseases caused by skeletal or smooth
XX muscle wasting. The products can also be used for detection, diagnosis,
XX for the production of transgenic or knockout animals or for drug
XX screening

XX Sequence 362 AA;

Query Match 100.0%; Score 277; DB 2; Length 362;
Best Local Similarity 100.0%; Pred. No. 4.9e-20;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCINDEGCFVIEITLTGSHKRCCKEGYQGVRCDOFL 47
288 HFKPCRDKDLAYCINDEGCFVIEITLTGSHKRCCKEGYQGVRCDOFL 334

RESULT 8
ABB08776
ID ABB08776 standard; protein; 502 AA.

AC ABB08776;

XX 16-MAY-2002 (first entry)

DE Human neuroregulin 55 SEQ ID NO 2.

XX Human, neuroregulin 55; nervous system; development; neuropsychopathy;
KM tumour; inflammation; immunological disease.

OS Homo sapiens.

XX CNI324826-A.

PD 05-DEC-2001.

XX 19-MAY-2000; 2000CN-00115761.

XX 19-MAY-2000; 2000CN-00115761.

XX (BODE-) BODE GENE DEV CO LTD SHANGHAI.

PI Mao Y, Xie Y;

XX WPI; 2002-217507/28.

DR N-PSDB; ABLA1244.

XX New polypeptide human neuroregulin 55 and polynucleotides for encoding same.

XX Claim 1; Page 27-28 (Disclosure); 35pp; Chinese.

CC The invention relates to human neuroregulin 55, polynucleotide for coding
CC this polypeptide and a method for producing this polypeptide by using DNA
CC recombination technique. The invention also discloses the method for
CC curing several diseases, such as nervous system developmental diseases,
CC neuropsychopathy, other nervous system diseases, development disturbance,
CC tumours, inflammations and immunological diseases by using said
CC polypeptide. The invention also discloses an antagonist for resisting
CC said polypeptide and its therapeutic action and also discloses the
CC application of polynucleotide to coding this novel human neuroregulin 55.
CC The present sequence is that of human neuroregulin 55

XX Sequence 502 AA;

Query Match 100.0%; Score 277; DB 5; Length 502;
Best Local Similarity 100.0%; Pred. No. 6.6e-20;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCINDEGCFVIEITLTGSHKRCCKEGYQGVRCDOFL 47
92 HFKPCRDKDLAYCINDEGCFVIEITLTGSHKRCCKEGYQGVRCDOFL 138

RESULT 9
AAW97619
ID AAW97619 standard; protein; 696 AA.

AC AAW97619;
XX 10-MAY-1999 (first entry)

DE Human neuroregulin related ligand NR3 (splice variant).

XX Neuroregulin related ligand; NR3; hNR3B1; human; ErbB4 receptor;
KM signal transduction; nervous system disorder; neurodegeneration;
XX neuropathy; therapy; diagnosis; splice variant.

OS Homo sapiens.

XX Key Location/Qualifiers

FT Domain 1..360
/note="extracellular domain, specifically claimed in

FT Region 66..91
/note="hydrophobic region"

FT Region 101..284
/note="mucin-like Ser/Thr-rich region, contains sites

FT Domain 285..354
/note="EGF-like domain"

FT Domain 356..394
/note="transmembrane domain"

XX W09902681-A1.

XX 21-JAN-1999.

XX 30-JUN-1998; 98WO-US013411.

XX 09-JUL-1997; 97US-0052019P.

XX 24-JUL-1997; 97US-00899437.

XX (GETH) GENENTECH INC.

PI Godowski PJ, Mark MR, Zhang D;

XX WPI; 1999-120882/10.

DR N-PSDB; AAX06989.

XX New isolated neuroregulin related ligand-3 - used to develop products for
FT treating nervous system disorders, e.g. stroke, ischemia, infection,
FT malignancy, Alzheimer's disease or Down's syndrome.

XX Example 1; Page 78-81; 101pp; English.

CC This is the amino acid sequence of splice variant hNR3B2 of human
CC neuroregulin related ligand NR3, a novel member of the epidermal growth
CC factor (EGF)-like family of protein ligands that binds to the ErbB4
CC receptor, but not to the ErbB2 or ErbB3 receptor, and which activates
CC ErbB4 receptor tyrosine phosphorylation. The sequence was deduced from
CC the nucleotide sequence of a cDNA clone (see AAX06989) from a foetal
CC brain library. hNR3B2 lacks amino acids 529-552 of hNR3B1 (see
CC AAW97618) but retains the EGF-like domain and is expected to exhibit
CC biological activity. The invention provides human and murine NR3
CC polypeptides (see AAW97617), expression vectors, host cells and methods
CC for the recombinant production of NR3s. The NR3 polypeptides and
CC polynucleotides and can be used to enhance the survival, proliferation or
CC differentiation of cells having the ErbB4 receptor in vivo and in vitro.
CC They can be used to prevent or treat damage to a nerve or damage to other
CC cells. In particular, they can be used to treat diseases which involve
CC neural cell growth such as demyelination, or damage or loss of glial
CC cells (e.g. multiple sclerosis). They can be used to treat patients whose
CC nervous system has been damaged by e.g. trauma, surgery, stroke,
CC ischaemia, infection, metabolic disease, nutritional deficiency,
CC malignancy, or toxic agents. NR3 can also be used to treat motor neuron
CC disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
CC Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's

CC syndrome, nerve deafness, and Meniere's disease. They can also be used to
 CC treat neuropathies associated with systemic disease including post-polio
 CC syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
 CC Refsum's disease, abetalipoproteinemia, Tangier disease, Krabbe's
 CC disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-
 CC Scottas syndrome, to treat disease of skeletal muscle of smooth muscle,
 CC such as muscular dystrophy or diseases caused by skeletal or smooth
 CC muscle wasting. The products can also be used for detection, diagnosis,
 CC for the production of transgenic or knockout animals or for drug
 CC screening

CC Sequence 696 AA;

Query Match 100.0%; Score 277; DB 2; Length 696;
 Best Local Similarity 100.0%; Pred. No. 8.9e-20;
 Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HFKPCRDLDAYCINDGECFVIEITLGSKHCRCKEGYGVACDQFL 47
 |||||
 DB 286 HFKPCRDLDAYCINDGECFVIEITLGSKHCRCKEGYGVACDQFL 332

RESULT 10

ABG32080 standard; protein; 696 AA.

ABG32080;

05-NOV-2002 (first entry)

Novel human neuregulin related ligand NRG3B2.

KM Neuregulin related ligand; NRG3; neuroprotective; cell therapy;
 KM epidermal growth factor-like domain; EGF-like domain; Bell's palsy;
 KM ErbB4 receptor detection; amyotrophic lateral sclerosis; paralysis;
 KM Lou Gehrig's disease; spinal muscular atrophy; multiple sclerosis;
 KM neurodegenerative disorder; Alzheimer's disease; Parkinson's disease;
 KM epilepsy; Huntington's chorea; Down's syndrome; nerve deafness;
 KM Meniere's disease; neuropathy; distal sensorimotor neuropathy;
 KM autonomic neuropathy; hereditary neuropathy; Charcot-Marie-Tooth disease;
 KM Refsum's disease; Abetalipoproteinemia; Tangier disease;
 KM Krabbe's disease; Metachromatic leukodystrophy; Fabry's disease;
 KM Dejerine-Scottas syndrome; human; NRG3B2.

OS Homo sapiens.

US2002082229-A1.

27-JUN-2002.

26-MAR-2001; 2001US-00817647.

24-JUL-1997; 97US-0053641P.

30-JUN-1998; 98US-00107979.

(GETH) GENENTECH INC.

Godowski PJ, Mark MR, Zhang D;

WPI; 2002-617760/66.

N-PSDB; ABK30730.

A new neuregulin related ligand designated NRG3 has an epidermal growth
 factor-like domain and binds to ErbB4 receptor, and is useful to prevent
 or treat NRG3 associated disorders, particularly nerve damage.

Example 1; Fig 4A-B; 60pp; English.

The invention describes a polypeptide comprising an amino acid sequence
 encoding an epidermal growth factor (EGF)-like domain, and having the
 binding characteristics of neuregulin related ligand (NRG3). NRG3
 polypeptide can be used to detect ErbB4 receptor in a mammalian tissue
 sample, and also to prevent or treat disorders associated with NRG3 such

CC as: amyotrophic lateral sclerosis (Lou Gehrig's disease), Bell's palsy
 CC and various conditions involving spinal muscular atrophy or paralysis,
 CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
 CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
 CC syndrome, nerve deafness, Meniere's disease, neuropathy such as distal
 CC sensorimotor neuropathy or autonomic neuropathy, hereditary neuropathies
 CC such as Charcot-Marie-Tooth disease, Refsum's disease,
 CC Abetalipoproteinemia, Tangier disease, Krabbe's disease, Metachromatic
 CC leukodystrophy, Fabry's disease and Dejerine-Scottas syndrome. This is
 CC the amino acid sequence of the novel human neuregulin related ligand
 CC NRG3B2

CC Sequence 696 AA;

Query Match 100.0%; Score 277; DB 5; Length 696;
 Best Local Similarity 100.0%; Pred. No. 8.9e-20;
 Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HFKPCRDLDAYCINDGECFVIEITLGSKHCRCKEGYGVACDQFL 47
 |||||
 DB 286 HFKPCRDLDAYCINDGECFVIEITLGSKHCRCKEGYGVACDQFL 332

RESULT 11

AAW97617 standard; protein; 713 AA.

AAW97617;

10-MAY-1999 (first entry)

Mouse neuregulin related ligand NRG3.

KM Neuregulin related ligand; NRG3; mouse; ErbB4 receptor;
 KM signal transduction; nervous system disorder; neurodegeneration;
 KM neuropathy; therapy; diagnosis.

OS Mus sp.

PH Key

FT Domain

FT Region

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

Location/Qualifiers

1..362 /note="extracellular domain, specifically claimed in

Claim 5(a)"

66..91 /note="hydrophobic region"

105..286 /note="mucin-like Ser/Thr-rich region, contains sites

for O-linked glycosylation"

287..334 /note="EGF-like domain"

363..385 /note="transmembrane domain"

/note="transmembrane domain"

WO9902681-A1.

21-JAN-1999.

30-JUN-1998; 98WO-US013411.

09-JUL-1997; 97US-0052019P.

24-JUL-1997; 97US-00899437.

(GETH) GENENTECH INC.

Godowski PJ, Mark MR, Zhang D;

WPI; 1999-120882/10.

N-PSDB; AAX06987.

New isolated neuregulin related ligand-3 - used to develop products for
 treating nervous system disorders, e.g. stroke, ischaemia, infection,
 malignancy, Alzheimer's disease or Down's syndrome.

PS Claim 5(b); Page 59-62; 101pp; English.

XX This is the amino acid sequence of murine neuregulin related ligand NRG3,
CC a novel member of the epidermal growth factor (EGF)-like family of
CC protein ligands that binds to the ErbB4 receptor, but not to the ErbB2 or
CC ErbB3 receptor, and which activates ErbB4 receptor tyrosine
CC phosphorylation. The sequence was deduced from the nucleotide sequences
CC of cDNA clones (see AA06987) from a mouse brain library. The EGF-like
CC domain of NRG3 is distinct from those of NRG1 or NRG2, and NRG3 displays
CC receptor binding characteristics that are distinct from those of other
CC neuregulins. The invention provides human and murine NRG3 polypeptides
CC (see also AA07618), expression vectors, host cells and methods for the
CC recombinant production of NRG3s. The NRG3 polypeptides and
CC polynucleotides and can be used to enhance the survival, proliferation or
CC differentiation of cells having the ErbB4 receptor in vivo and in vitro.
CC They can be used to prevent or treat damage to a nerve or damage to other
CC NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney
CC cells. In particular, they can be used to treat diseases which involve
CC neural cell growth such as demyelination, or damage or loss of glial
CC cells (e.g. multiple sclerosis). They can be used to treat patients whose
CC nervous system has been damaged by e.g. trauma, surgery, stroke,
CC ischemia, infection, metabolic disease, nutritional deficiency,
CC malignancy, or toxic agents. NRG3 can also be used to treat motor neuron
CC disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
CC Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
CC syndrome, nerve deafness, and Meniere's disease. They can also be used to
CC treat neuropathies associated with systemic disease including post-polio
CC syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
CC Refsum's disease, abetalipoproteinemia, Tangier disease, Krabbe's
CC disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-
CC Scott's syndrome, to treat disease of skeletal muscle of smooth muscle,
CC such as muscular dystrophy or diseases caused by skeletal or smooth
CC muscle wasting. The products can also be used for detection, diagnosis,
CC for the production of transgenic or knockout animals or for drug
CC screening
XX

SO Sequence 713 AA:

* Query Match 100.0%; Score 277; DB 2; Length 713;
Best Local Similarity 100.0%; Pred. No. 9.1e-20;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVIFETLGSNHCRCCKEGYGVRCDOFL 47
DB 288 HFKPCRDKDLAYCLNDGECFVIFETLGSNHCRCCKEGYGVRCDOFL 334

RESULT 12

ABG32061
ID ABG32061 standard; protein; 713 AA.

AC ABG32061;

DT 05-NOV-2002 (first entry)

XX Mouse novel neuregulin related ligand NRG3.

XX Neuregulin related ligand; NRG3; neuroprotective; cell therapy;
XX epidermal growth factor-like domain; EGF-like domain; Bell's palsy;
XX ErbB4 receptor detection; amyotrophic lateral sclerosis; paralysis;
XX Lou Gehrig's disease; spinal muscular atrophy; multiple sclerosis;
XX neurodegenerative disorder; Alzheimer's disease; Parkinson's disease;
XX epilepsy; Huntington's chorea; Down's syndrome; nerve deafness;
XX Meniere's disease; neuropathy; distal sensorimotor neuropathy;
XX autonomic neuropathy; hereditary neuropathy; Charcot-Marie-Tooth disease;
XX Refsum's disease; Abetalipoproteinemia; Tangier disease;
XX Krabbe's disease; Metachromatic leukodystrophy; Fabry's disease;
XX Dejerine-Scott's syndrome; mouse.

XX Mus sp.

OS
XX

PH Key location/Qualifiers

FT Domain

FT Domain

FT Domain

FT Domain

FT Domain

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XX

SO Sequence 713 AA:

* Query Match 100.0%; Score 277; DB 5; Length 713;
Best Local Similarity 100.0%; Pred. No. 9.1e-20;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVIFETLGSNHCRCCKEGYGVRCDOFL 47
DB 288 HFKPCRDKDLAYCLNDGECFVIFETLGSNHCRCCKEGYGVRCDOFL 334

RESULT 13

AAW97618
ID AAW97618 standard; protein; 720 AA.

AC AAW97618;

DT 10-MAY-1999 (first entry)

XX Human neuregulin related ligand NRG3.

XX Neuregulin related ligand; NRG3; hNRG3B1; human; ErbB4 receptor;
XX signal transduction; nervous system disorder; neurodegeneration;
XX neuropathy; therapy; diagnosis.

XX

OS Homo sapiens.
 XX Key Location/Qualifiers
 FH Domain 1..360
 FT /note= "extracellular domain, specifically claimed in
 FT Claim 5(a)"
 FT 66..91
 FT Region /note= "hydrophobic region"
 FT 101..284
 FT Region /note= "mucin-like Ser/Thr-rich region, contains sites
 FT for O-linked glycosylation"
 FT 285..354
 FT Domain /note= "BGF-like domain"
 FT 356..394
 FT /note= "transmembrane domain"
 FT Domain
 PN WO9902681-A1.
 PD 21-JAN-1999.
 PF 30-JUN-1998; 98WO-US013411.
 PR 09-JUL-1997; 97US-0052019P.
 PR 24-JUL-1997; 97US-00899437.
 XX (GERTH) GENENTECH INC.
 PA Godowski PJ, Mark MR, Zhang D;
 PI WPI: 1999-120882/10.
 DR N-PSDB; AAX06988.
 XX New isolated heregulin related ligand-3 - used to develop products for
 PT treating nervous system disorders, e.g. stroke, ischaemia, infection,
 PT malignancy, Alzheimer's disease or Down's syndrome.
 PT malignancy, Alzheimer's disease or Down's syndrome.
 PS Claim 5(b); Page 66-69; 101pp; English.
 XX This is the amino acid sequence of human heregulin related ligand NRG3,
 CC a novel member of the epidermal growth factor (EGF)-like family of
 CC protein ligands that binds to the ErbB4 receptor, but not to the ErbB2 or
 CC ErbB3 receptor, and which activates ErbB4 receptor tyrosine
 CC phosphorylation. The sequence was deduced from the nucleotide sequence of
 CC a cDNA clone (see AAX06988) from a foetal brain library. The BGF-like
 CC domain of NRG3 is distinct from those of NRG1 or NRG2, and NRG3 displays
 CC receptor binding characteristics that are distinct from those of other
 CC heregulin. An alternatively spliced form of human NRG3 is provided in
 CC also AAX97619. The invention provides human and murine NRG3 polypeptides (see
 CC AAX97619). Expression vectors, host cells and methods for the
 CC recombinant production of NRG3s. The NRG3 polypeptides and
 CC polynucleotides and can be used to enhance the survival, proliferation or
 CC differentiation of cells having the ErbB4 receptor in vivo and in vitro.
 CC They can be used to prevent or treat damage to a nerve or damage to other
 CC NRG3-expressing or NRG3-responsive cells, e.g. brain, heart, or kidney
 CC cells. In particular, they can be used to treat diseases which involve
 CC neural cell growth such as demyelination, or damage or loss of glial
 CC cells (e.g. multiple sclerosis). They can be used to treat patients whose
 CC nervous system has been damaged by e.g. trauma, surgery, stroke,
 CC ischaemia, infection, metabolic disease, nutritional deficiency, stroke,
 CC malignancy, or toxic agents. NRG3 can also be used to treat motor neuron
 CC disorders such as amyotrophic lateral sclerosis (Lou Gehrig's disease),
 CC Bell's palsy, conditions involving spinal muscular atrophy or paralysis,
 CC neurodegenerative disorders such as Alzheimer's disease, Parkinson's
 CC disease, epilepsy, multiple sclerosis, Huntington's chorea, Down's
 CC syndrome, nerve deafness, and Meniere's disease. They can also be used to
 CC treat neuropathies associated with systemic disease including post-polio
 CC syndrome, hereditary neuropathies including Charcot-Marie-Tooth disease,
 CC Refsum's disease, abetalipoproteinemia, Rangelier disease, Krabbe's
 CC disease, metachromatic leukodystrophy, Fabry's disease and Dejerine-
 CC Sottas syndrome, to treat disease of skeletal muscle of smooth muscle,
 CC such as muscular dystrophy or diseases caused by skeletal or smooth
 CC muscle wasting. The products can also be used for detection, diagnosis,
 CC for the production of transgenic or knockout animals or for drug

CC screening
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 Query Match 100.0%; Score 277; DB 2; Length 720;
 Best Local Similarity 100.0%; Pred. No. 9.2e-20;
 Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HKPCRDKLAVCLNDGECFVLETITGSHKRCRCKEGYGVRCDFL 47
 DB 286 HKPCRDKLAVCLNDGECFVLETITGSHKRCRCKEGYGVRCDFL 332
 RESULT 14
 AAG32065
 ID AAG32065 standard; protein, 720 AA.
 XX Homo sapiens.
 XX WO9857989-A1.
 PD 23-DEC-1998.
 PF 16-JUN-1998; 98WO-US012403.
 PR 17-JUN-1997; 97US-0049942P.
 XX (HUMA-) HUMAN GENOME SCI INC.
 PA (GEOU) UNIV GEORGETOWN.
 PI Young P, Ruben SM, King CR, Hijazi MM;
 DR WPI: 1999-095327/08.
 XX New isolated heregulin-like factor - used to develop products for the
 PT diagnosis and treatment of disorders involving regulation of cell growth,
 PT particularly cancers.
 PS Disclosure; Page 97-99; 118pp; English.
 XX This sequence is the human heregulin-like factor (HLF) of the invention.
 CC The HLF is involved in the regulation of cell growth. Detection of
 CC different levels of expression of the HLF gene can be used for the
 CC diagnosis of disorders, e.g. in the neural system. In particular,
 CC detection of different levels of HLF gene expression in cells or body
 CC fluid of an individual can be used for diagnosing cancer. The products
 CC can also be used in the treatment of disorders involving abnormal levels
 CC of HLF activity
 XX SQ Sequence 720 AA;
 Query Match 100.0%; Score 277; DB 2; Length 720;
 Best Local Similarity 100.0%; Pred. No. 9.2e-20;
 Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HKPCRDKLAVCLNDGECFVLETITGSHKRCRCKEGYGVRCDFL 47
 DB 286 HKPCRDKLAVCLNDGECFVLETITGSHKRCRCKEGYGVRCDFL 332
 RESULT 15
 AAG32065
 ID AAG32065 standard; protein, 720 AA.

AC	ABG32065;
XX	
DT	05-NOV-2002 (first entry)
DE	
XX	Human novel neuregulin related ligand NRG3B1.
XX	
KW	Neuregulin related ligand; NRG3; neuroprotective; cell therapy;
KM	epidermal growth factor-like domain; EGF-like domain; Bell's palsy;
KM	ErbB4 receptor detection; amyotrophic lateral sclerosis; paralyisis;
KM	lou Gehrig's disease; spinal muscular atrophy; multiple sclerosis;
KM	neurodegenerative disorder; Alzheimer's disease; Parkinson's disease;
KW	epilepsy; Huntingdon's chorea; Down's syndrome; nerve deafness;
KW	Meniere's disease; neuropathy; distal sensorimotor neuropathy;
KW	autonomic neuropathy; hereditary neuropathy; Charcot-Marie-Tooth disease;
KW	Refsum's disease; Abetalipoproteinemia; Tangier disease;
KM	Krabbe's disease; Metachromatic leukodystrophy; Fabry's disease;
KX	Dejerine-Scottas syndrome; human; gene; ss; NRG3B1.
XX	
OS	Homo sapiens.
XX	
FH	Key
FT	Domain
FT	Location/Qualifiers
FT	1..360
FT	/label= "Extracellular domain
FT	/note= "Specifically claimed in claim 5"
FT	286..332
FT	/label= "EGF-like domain
FT	/note= "Extracellular epidermal growth factor-like
FT	domain"
XX	
PN	US2002082229-A1.
XX	
PD	27-JUN-2002.
XX	
PR	26-MAR-2001; 2001US-00817647.
XX	
XK	24-JUL-1997; 97US-0053641P.
PR	30-JUN-1998; 98US-00107979.
XX	
PA	(GETH) GENENTECH INC.
XY	
PI	Godowaki PJ, Mark MR, Zhang D;
XX	
DR	WPI; 2002-617760/66.
N-PSDB;	ABK90731.
PT	A new neuregulin related ligand designated NRG3 has an epidermal growth
PT	factor-like domain and binds to ErbB4 receptor, and is useful to prevent
PT	or treat NRG3 associated disorders, particularly nerve damage.
XX	
PS	Example 1; Fig 4A-B; 60pp; English.
XX	
CC	The invention describes a polypeptide comprising an amino acid sequence
CC	encoding an epidermal growth factor (EGF)-like domain, and having the
CC	binding characteristics of neuregulin related ligand (NRG3). NRG3
CC	polypeptide can be used to detect ErbB4 receptor in a mammalian tissue
CC	sample, and also to prevent or treat disorders associated with NRG3 such
CC	as: amyotrophic lateral sclerosis (lou Gehrig's disease), Bell's palsy
CC	and various conditions involving spinal muscular atrophy or paralysis,
CC	neurodegenerative disorders such as Alzheimer's disease, Parkinson's
CC	disease, epilepsy, multiple sclerosis, Huntingdon's chorea, Down's
CC	syndrome, nerve deafness, Meniere's disease, neuropathy such as distal
CC	sensorimotor neuropathy or autonomic neuropathy, hereditary neuropathies
CC	such as Charcot-Marie-Tooth disease, Refsum's disease,
CC	Abetalipoproteinemia, Tangier disease, Krabbe's disease, Metachromatic
CC	leukodystrophy, Fabry's disease and Dejerine-Scottas syndrome. This is
CC	the amino acid sequence of the novel human neuregulin related ligand
CC	(NRG3B1).
XX	
Q0	Sequence 720 AA;

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Oy 1 HFKKCRKDADYACLNDECFVIELTTSHKHCKRKEGYQGRCDQFL 47
Db 286 HFKKCRKDADYACLNDECFVIELTTSHKHCKRKEGYQGRCDQFL 332

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Query Match	100.0%;	Score 277;	DB 5;	Length 720;
Best Local Similarity	100.0%;	Pred. No. 9.2e-20;		
Matches 47;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;

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GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: May 4, 2005, 11:57:22 ; Search time 43 Seconds
(without alignments)
81.593 Million cell updates/sec

Title: US-09-107-979-4

Perfect score: 277

Sequence: 1 HFKPCRDKLAYCLNDGECF.....SHKCRCKEGYGVRCDFL 47

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 513545 segs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seg length: 0
Maximum DB seg length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database:

Issued Patents: AA: *
1: /cgn2_6/ptoddata/1/iaa/5A COMB.pep: *
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6: /cgn2_6/ptoddata/1/iaa/backfile1.pep: *

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	277	100.0	47	3	US-08-899-437-4
2	277	100.0	47	3	US-08-899-437-8
3	277	100.0	47	3	US-09-126-121-4
4	277	100.0	47	3	US-09-126-121-8
5	277	100.0	48	4	US-09-553-769-6
6	277	100.0	157	4	US-09-097-681-2
7	277	100.0	360	3	US-08-899-437-7
8	277	100.0	360	3	US-09-126-121-7
9	277	100.0	362	3	US-08-899-437-3
10	277	100.0	362	3	US-09-126-121-3
11	277	100.0	696	3	US-08-899-437-23
12	277	100.0	696	3	US-09-126-121-23
13	277	100.0	713	3	US-08-899-437-2
14	277	100.0	720	3	US-09-126-121-2
15	277	100.0	720	3	US-08-899-437-6
16	277	100.0	720	3	US-09-126-121-6
17	277	100.0	720	4	US-09-097-681-22
18	116.5	42.1	52	1	US-08-417-640A-1
19	116.5	42.1	52	1	US-08-760-815-1
20	116.5	42.1	52	2	US-08-761-038-1
21	116.5	42.1	52	3	US-09-238-182-1
22	113.5	41.0	49	3	US-08-899-437-14
23	113.5	41.0	49	3	US-09-126-121-14
24	113.5	41.0	50	3	US-08-753-007A-12
25	113.5	41.0	50	3	US-09-398-496-12
26	113.5	41.0	52	1	US-08-417-640A-3
27	113.5	41.0	52	1	US-08-760-815-3

28	113.5	41.0	52	2	US-08-761-038-3	Sequence 3, Appl
29	113.5	41.0	53	4	US-09-097-681-17	Sequence 17, Appl
30	113.5	41.0	54	1	US-08-179-481-111	Sequence 111, Appl
31	113.5	41.0	63	3	US-08-341-018-62	Sequence 62, Appl
32	113.5	41.0	63	3	US-08-470-335-221	Sequence 221, Appl
33	113.5	41.0	63	3	US-08-467-602-415	Sequence 415, Appl
34	113.5	41.0	63	4	US-08-411-295F-55	Sequence 55, Appl
35	113.5	41.0	63	4	US-08-411-295F-98	Sequence 98, Appl
36	113.5	41.0	63	4	US-08-411-295F-136	Sequence 136, Appl
37	113.5	41.0	66	1	US-07-847-743B-10	Sequence 10, Appl
38	113.5	41.0	66	1	US-08-456-201-10	Sequence 10, Appl
39	113.5	41.0	66	2	US-08-456-241-10	Sequence 10, Appl
40	113.5	41.0	66	3	US-09-020-880-2	Sequence 2, Appl
41	113.5	41.0	66	3	US-09-101-544-2	Sequence 2, Appl
42	113.5	41.0	66	5	PCT-US92-04295A-10	Sequence 10, Appl
43	113.5	41.0	83	3	US-08-341-018-70	Sequence 70, Appl
44	113.5	41.0	83	3	US-08-470-335-225	Sequence 225, Appl
45	113.5	41.0	83	3	US-08-470-335-225	Sequence 225, Appl

ALIGNMENTS

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RESULT 1
US-08-899-437-4
; Sequence 4, Application US/08899437
; Patent No. 6121415
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSER: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Winpatin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/899,437
; FILING DATE: 24-Jul-1997
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/952-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 47 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: NRG3 EGF-like domain/amino acid seq.
; LOCATION: 1-47
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; US-08-899-437-4
;
Query Match 100.0% Score 277; DB 3; Length 47;
Best Local Similarity 100.0%; Pred No. 3.1e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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DB      1 HFKPCRDKLAVCLNDGECFVETLTGSHKRCCKEGYGVRCDFL 47

RESULT 2
US-08-899-437-8
; Sequence 8, Application US/08899437
; Patent No. 6121415
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Winpatin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/899,437
; FILING DATE: 24-Jul-1997
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 47 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
; FEATURE:
; NAME/KEY: NRG3 EGF-like domain/amino acid seq.
; LOCATION: 1-47
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
;
US-08-899-437-8

Query Match      100.0%; Score 277; DB 3; Length 47;
Best Local Similarity 100.0%; Pred. No. 3.1e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

DB      1 HFKPCRDKLAVCLNDGECFVETLTGSHKRCCKEGYGVRCDFL 47
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RESULT 3
US-09-126-121-4
; Sequence 4, Application US/09126121
; Patent No. 6252051
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Winpatin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/126,121
; FILING DATE: 30-Jul-1998
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1D1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 47 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear

DB      1 HFKPCRDKLAVCLNDGECFVETLTGSHKRCCKEGYGVRCDFL 47
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RESULT 4
US-09-126-121-8
; Sequence 8, Application US/09126121
; Patent No. 6252051
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; TITLE OF INVENTION: Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Winpatin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/126,121
; FILING DATE: 30-Jul-1998
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1D1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 47 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
```

FEATURE:
NAME/KEY: NR03 BGF-like domain/amino acid seq.
LOCATION: 1-47
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-8

Query Match 100.0%; Score 277; DB 3; Length 47;
Best Local Similarity 100.0%; Pred. No. 3.1e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HFKECRDKDLAYCLNDGECFVIEITLTGSHKRCCKEGYGVRCDOFL 47
Db 1 HFKECRDKDLAYCLNDGECFVIEITLTGSHKRCCKEGYGVRCDOFL 47

RESULT 5
US-09-553-769-6
Sequence 6, Application US/09553769
Patent No. 6544759
GENERAL INFORMATION:

APPLICANT: Harari, Daniel
APPLICANT: Yarden, Yosef
TITLE OF INVENTION: NOVEL GROWTH FACTOR WHICH ACTS THROUGH ETRB-4 RECEPTOR TYROSINE K
TITLE OF INVENTION: SEQUENCES ENCODING SAME AND USES THEREOF
FILE REFERENCE: 00/20522
CURRENT APPLICATION NUMBER: US/09/553,769
CURRENT FILING DATE: 2000-04-21
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PatentIn version 3.0
SEQ ID NO 6
LENGTH: 48
TYPE: PRT
ORGANISM: Mus musculus
US-09-553-769-6

Query Match 100.0%; Score 277; DB 4; Length 48;
Best Local Similarity 100.0%; Pred. No. 3.1e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HFKECRDKDLAYCLNDGECFVIEITLTGSHKRCCKEGYGVRCDOFL 47
Db 2 HFKECRDKDLAYCLNDGECFVIEITLTGSHKRCCKEGYGVRCDOFL 48

RESULT 6
US-09-097-681-2
Sequence 2, Application US/09097681
Patent No. 6727077
GENERAL INFORMATION:

APPLICANT: Young, Paul
APPLICANT: King, C. Richer
APPLICANT: Hlilazi, Mai
APPLICANT: Ruben, Steve
TITLE OF INVENTION: Heregulin-like Factor
NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences, Inc.
STREET: 9410 Key West Avenue
CITY: Rockville
STATE: MD
COUNTRY: US
ZIP: 20850

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/097,681
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 60/049,942
FILING DATE: 17-JUN-1997
ATTORNEY/AGENT INFORMATION:
NAME: Hoover, Kenley K.
REGISTRATION NUMBER: 40,302
REFERENCE/DOCKET NUMBER: PF383PCT
TELECOMMUNICATION INFORMATION:
TELEPHONE: 301-3098504
TELEFAX: 301-309-8439
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 157 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-09-097-681-2

Query Match 100.0%; Score 277; DB 4; Length 157;
Best Local Similarity 100.0%; Pred. No. 1.1e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HFKECRDKDLAYCLNDGECFVIEITLTGSHKRCCKEGYGVRCDOFL 47
Db 31 HFKECRDKDLAYCLNDGECFVIEITLTGSHKRCCKEGYGVRCDOFL 77

RESULT 7
US-08-899-437-7
Sequence 7, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:

APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
TITLE OF INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPacIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/899,437
FILING DATE: 24-Jul-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 360 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear

FEATURE:
NAME/KEY: hNRG3 extracellular domain/Amino AcidSeq
LOCATION: 1-360
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-08-899-437-7

Query Match 100.0%; Score 277; DB 3; Length 360;
Best Local Similarity 100.0%; Pred. No. 2.5e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVIEITLGS HKHCRCKEGYGVRCDOFL 47
DB 286 HFKPCRDKDLAYCLNDGECFVIEITLGS HKHCRCKEGYGVRCDOFL 332

RESULT 8
US-09-126-121-7
Sequence 7, Application US/09126121
Patent No. 6252051
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
TITLE OR INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESSES:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 360 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: HNRG3 extracellular domain/Amino AcidsSeq
LOCATION: 1-360
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-7

Query Match 100.0%; Score 277; DB 3; Length 360;
Best Local Similarity 100.0%; Pred. No. 2.5e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVIEITLGS HKHCRCKEGYGVRCDOFL 47
DB 286 HFKPCRDKDLAYCLNDGECFVIEITLGS HKHCRCKEGYGVRCDOFL 332

RESULT 9
US-08-899-437-3
Sequence 3, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
TITLE OR INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESSES:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California

QY 1 HFKPCRDKDLAYCLNDGECFVIEITLGS HKHCRCKEGYGVRCDOFL 47
DB 286 HFKPCRDKDLAYCLNDGECFVIEITLGS HKHCRCKEGYGVRCDOFL 334

RESULT 10
US-09-126-121-3
Sequence 3, Application US/09126121
Patent No. 6252051
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
TITLE OR INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESSES:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:

QY 1 HFKPCRDKDLAYCLNDGECFVIEITLGS HKHCRCKEGYGVRCDOFL 47
DB 286 HFKPCRDKDLAYCLNDGECFVIEITLGS HKHCRCKEGYGVRCDOFL 334

RESULT 10
US-08-899-437-3
Sequence 3, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
TITLE OR INVENTION: Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESSES:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/899,437
FILING DATE: 24-Jul-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 362 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: HNRG3 extracellular domain/Amino acid seq
LOCATION: 1-362
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-08-899-437-3

Query Match 100.0%; Score 277; DB 3; Length 362;
Best Local Similarity 100.0%; Pred. No. 2.5e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

LENGTH: 362 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: mNRG3 extracellular domain amino acid seq
LOCATION: 1-362
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-3

Query Match 100.0%; Score 277; DB 3; Length 362;
Best Local Similarity 100.0%; Pred. No. 2.5e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVITLTGSHKCRCKEGYGVRCDFL 47
DB 288 HFKPCRDKDLAYCLNDGECFVITLTGSHKCRCKEGYGVRCDFL 334

RESULT 11

US-08-899-437-23
Sequence 23, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Winpatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/899,437
FILING DATE: 24-Jul-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/952-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-08-899-437-23

Query Match 100.0%; Score 277; DB 3; Length 696;
Best Local Similarity 100.0%; Pred. No. 4.9e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVITLTGSHKCRCKEGYGVRCDFL 47
DB 286 HFKPCRDKDLAYCLNDGECFVITLTGSHKCRCKEGYGVRCDFL 332

RESULT 12

US-09-126-121-23

Sequence 23, Application US/09126121
Patent No. 6252051
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Winpatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/126,121
FILING DATE: 30-Jul-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/952-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 23:
SEQUENCE CHARACTERISTICS:
LENGTH: 696 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: Human NRG3B2
LOCATION: 1-696
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-09-126-121-23

Query Match 100.0%; Score 277; DB 3; Length 696;
Best Local Similarity 100.0%; Pred. No. 4.9e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVITLTGSHKCRCKEGYGVRCDFL 47
DB 286 HFKPCRDKDLAYCLNDGECFVITLTGSHKCRCKEGYGVRCDFL 332

RESULT 13

US-08-899-437-2
Sequence 2, Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Winpatin (Genentech)

```

OTHER INFORMATION:
US-09-126-121-2
Query Match      100.0%; Score 277; DB 3; Length 713;
Best Local Similarity 100.0%; Pred. No. 5e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy      1 HFKPRCKDLAYCLNDGECFVIEITLTGSHKCRCKEGYQGVRCDOFL 47
        |||
Db      288 HFKECRKDLAYCLNDGECFVIEITLTGSHKCRCKEGYQGVRCDOFL 334

RESULT 15
US-08-899-437-6
Sequence 6; Application US/08899437
Patent No. 6121415
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSER: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPacIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/899,437
FILING DATE: 24-Jul-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Delidre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 720 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: hNRG3b1 amino acid sequence
LOCATION: 1-720
IDENTIFICATION METHOD:
OTHER INFORMATION:
US-08-899-437-6
Query Match      100.0%; Score 277; DB 3; Length 720;
Best Local Similarity 100.0%; Pred. No. 5.1e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy      1 HFKECRKDLYAYCLNDGECEFIETLTGSHKCRCKEGYQGVRCDOFL 47
        |||
Db      286 HFKECRKDLYAYCLNDGECEFIETLTGSHKCRCKEGYQGVRCDOFL 332

Search completed: May 4, 2005, 12:08:38
Job time : 44 secs

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: May 4, 2005, 11:54:21 ; Search time 176 Seconds
(without alignments)
136.748 Million cell updates/sec

Title: US-09-107-979-4
Perfect score: 277
Sequence: 1 HFRPCRDKDLAYCLNDECF.....SHKRCRCKEGYGVGRCDQFL 47

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database : UniProt_03.*
1: uniprot_sprot.*
2: uniprot_trembl.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match Length	ID	Description
1	277	100.0	NRG3_MOUSE	Q35181 mus musculu
2	277	100.0	NRG3_HUMAN	P66975 homo sapien
3	126.5	45.7	NRG1_XENLA	O93383 xenopus lae
4	113.5	41.0	O6TGK9	O6TGK9 oryctolagus
5	113.5	41.0	O35947	O35947 mesocricetu
6	113.5	41.0	O7RTW1	O7RTW1 homo sapien
7	113.5	41.0	NRG1_HUMAN	O02297 h pro-neure
8	113.5	41.0	O7RTV8	O7RTV8 homo sapien
9	111.5	40.3	O9ESA9	O9ESA9 ratius norv
10	111.5	40.3	O9ESB0	O9ESB0 ratius norv
11	110	39.7	NRG4_MOUSE	O9ESB4 mus musculu
12	109	39.4	NRG4_HUMAN	O6P6K1 homo sapien
13	104.5	37.7	O6P6K1	O6P6K1 homo sapien
14	104.5	37.7	O7RTW0	O7RTW0 homo sapien
15	104.5	37.7	O07112	O07112 bos taurus
16	104.5	37.7	SMDF_HUMAN	O15491 homo sapien
17	104.5	37.7	O961B3	O961B3 homo sapien
18	104.5	37.7	O6ICV5	O6ICV5 homo sapien
19	104.5	37.7	O7RTW2	O7RTW2 homo sapien
20	104.5	37.7	O7RTV9	O7RTV9 homo sapien
21	104.5	37.7	O7RTW3	O7RTW3 homo sapien
22	104.5	37.7	O7RTW4	O7RTW4 homo sapien
23	104	37.5	NRG2_MOUSE	P66974 mus musculu
24	103.5	37.4	O810X0	O810X0 mus musculu
25	103.5	37.4	O8BX76	O8BX76 mus musculu
26	103.5	37.4	O6DP98	O6DP98 mus musculu
27	103.5	37.4	O6DR39	O6DR39 mus musculu
28	102.5	37.0	O9ESA7	O9ESA7 ratius norv
29	102.5	37.0	O9ESA8	O9ESA8 ratius norv
30	102.5	37.0	O9ESA6	O9ESA6 ratius norv
31	102.5	37.0	O9ESA3	O9ESA3 ratius norv

32	102.5	37.0	Q9ESA2	Q9ESA2 ratius norv
33	102.5	37.0	Q9ESA1	Q9ESA1 ratius norv
34	102.5	37.0	NRG1_RAT	P43322 r pro-neure
35	102.5	37.0	Q9ESB1	Q9ESB1 ratius norv
36	102.5	37.0	Q9ESB5	Q9ESB5 ratius norv
37	99	35.7	O91MW0	O91MW0 jumpy skn
38	98.5	35.6	NRG1_CHICK	O05199 gallus gall
39	98	35.4	O7O1O6	O7O1O6 anopheles g
40	97	35.0	O810X1	O810X1 mus musculu
41	92.5	33.4	O01768	O01768 caenorhadi
42	91.5	33.0	JAG3_BRARE	Q90Y54 brachydantio
43	90.5	32.7	O86WJ0	O86WJ0 homo sapien
44	90	32.5	NRG2_HUMAN	O14511 homo sapien
45	90	32.5	NRG2_RAT	O35569 ratius norv

ALIGNMENTS

RESULT 1
NRG3_MOUSE STANDARD; PRT; 713 AA.
ID NRG3_MOUSE
AC Q35181;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 05-JUN-2004 (Rel. 44, Last annotation update)
DE Pro-neuregulin-3 precursor (Pro-NRG3) [Contains: Neuregulin-3 (NRG-3)].
OS Name=NRG3;
GN Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Scurionath; Muridae; Murinae; Mus.
OX NCBI_TaxId=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Brain;
RX MEDLINE=97420720; PubMed=9275162; DOI=10.1073/pnas.94.18.9562;
RA Zhang D., Sliwkowski M.X., Mark M., Frantz G., Akita R., Sun Y., Hillan K., Crowley G., Brush J., Godowski P.U.;
RT "Neuregulin-3 (NRG3): a novel neural tissue-enriched protein that binds and activates ErbB4.";
RL Proc. Natl. Acad. Sci. U.S.A. 94:9562-9567(1997).
CC -!- FUNCTION: Direct ligand for the ERBB4 tyrosine kinase receptor. Binding results in ligand-stimulated tyrosine phosphorylation and activation of the receptor. Does not bind to the EGF receptor, ERBB2 or ERBB3 receptors.
CC -!- SUBCELLULAR LOCATION: Exists as an type I membrane protein and as a proteolytically released soluble growth factor form. The membrane-bound form does not seem to be active (By similarity).
CC -!- TISSUE SPECIFICITY: Expressed in sympathetic, motor, and sensory neurons.
CC -!- DEVELOPMENTAL STAGE: Detected as early as 11 dpc. At 13 dpc detected mainly in the nervous system. At 16 dpc, detected in the brain, spinal cord, trigeminal, vestibular-cochlear, and spinal ganglia. In adults, expressed in spinal cord, and numerous brain regions.
CC -!- DOMAIN: The cytoplasmic domain may be involved in the regulation of trafficking and proteolytic processing. Regulation of the proteolytic processing involves initial intracellular domain dimerization (By similarity).
CC -!- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like domain (By similarity).
CC -!- PTM: Proteolytic cleavage close to the plasma membrane on the external face leads to the release of the soluble growth factor form (By similarity).
CC -!- PTM: Extensive glycosylation precedes the proteolytic cleavage (By similarity).
CC -!- SIMILARITY: Belongs to the neuregulin family.
CC -!- SIMILARITY: Contains 1 EGF-like domain.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its

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EMBL; AF010130; AAB70914.1; --

DR PIR; T44447; T44447.

DR HSSP; P01133; IJL9.

DR MGD; MGI:1097165; Nrg3.

DR GO; GO:0005515; F:protein binding; IPI.

DR GO; GO:0007243; P:protein kinase cascade; IDA.

DR InterPro; IPR007042; EGF_2.

DR InterPro; IPR006209; EGF_1like.

DR InterPro; IPR002154; Neuregulin.

DR Pfam; PF00008; EGF_1.

DR Pfam; PF02158; Neuregulin; 1.

DR PROSITE; PS00022; EGF_1; 1.

DR PROSITE; PS01186; EGF_2; 1.

DR PROSITE; PS50026; EGF_3; 1.

DR EGF_1like domain; Growth factor; Multigene family; Transmembrane.

FT CHAIN 1 713 Pro-neuregulin-3, membrane-bound form.

FT CHAIN 1 361 Extracellular-3.

FT TRANSMEM 363 383 Internal signal sequence (Potential).

FT DOMAIN 384 713 Cytoplasmic (Potential).

FT DOMAIN 105 287 Ser/Thr-rich.

FT DOMAIN 288 331 EGF-1like.

FT DOMAIN 13 21 Poly-Ala.

FT DOMAIN 26 34 Poly-Ala.

FT DOMAIN 127 135 Poly-Thr.

FT DOMAIN 250 253 Poly-Ala.

FT DOMAIN 254 263 Poly-Ser.

FT DOMAIN 264 267 Poly-Thr.

FT DISULFID 292 306 By similarity.

FT DISULFID 300 319 By similarity.

FT DISULFID 321 330 By similarity.

SQ SEQUENCE 713 AA; 77369 MW; 9F7D1D5E7F6D8D0 CRC64;

Query Match 100.0%; Score 277; DB 1; Length 713;
Best Local Similarity 100.0%; Pred. No. 8.6e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HRPKCRDRLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDFL 47
DB 288 HRPKCRDRLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDFL 334

RESULT 2
NRG3_HUMAN STANDARD; PRT; 720 AA.

AC P56975; 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Pro-neuregulin-3 precursor (Pro-NRG3) [Contains: Neuregulin-3 (NRG-3)].
GN Name=NRG3;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
OX NCBI_TaxID=9606;
RN [1] SEQUENCE FROM N.A.
RP TISSUE=fetal brain;
RX MEDLINE=97420720; PubMed=9275162; DOI=10.1073/pnas.94.18.9562;
RX Zhang D., Sliwkowski M.X., Mark M., Prantz G., Akita R., Sun Y., Hillan K., Crowley C., Brush J., Godowski P.J.;
RT "Neuregulin-3 (NRG3): a novel neural tissue-enriched protein that binds and activates ErbB4";
RL Proc. Natl. Acad. Sci. U.S.A. 94:9562-9567(1997).
CC -!- FUNCTION: Direct ligand for the ERBB4 tyrosine kinase receptor. Binding results in ligand-stimulated tyrosine phosphorylation and activation of the receptor. Does not bind to the EGF receptor.

ERBB2 or ERBB3 receptors.

CC -!- SUBCELLULAR LOCATION: Exists as an type I membrane protein and as a proteolytically released soluble growth factor form. The membrane-bound form does not seem to be active (By similarity).

CC -!- TISSUE SPECIFICITY: Highly expressed in most regions of the brain with the exception of corpus callosum. Expressed at lower level in testis. Not detected in heart, placenta, lung, liver, skeletal muscle, kidney, pancreas, spleen, thymus, prostate, ovary, small intestine, colon and peripheral blood leukocytes.

CC -!- DOMAIN: The cytoplasmic domain may be involved in the regulation of trafficking and proteolytic processing. Regulation of the proteolytic processing involves initial intracellular domain dimerization (By similarity).

CC -!- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like domain (By similarity).

CC -!- PTM: Proteolytic cleavage close to the plasma membrane on the external face leads to the release of the soluble growth factor form (By similarity).

CC -!- PTM: Extensive glycosylation precedes the proteolytic cleavage (By similarity).

CC -!- SIMILARITY: belongs to the neuregulin family.

CC -!- SIMILARITY: Contains 1 EGF-like domain.

DR HSSP; P01133; IJL9.

DR Genew; HGNC:7999; NRG3.

DR MIM: 605533; --

DR GO; GO:0005576; C:extracellular; NAS.

DR GO; GO:0005887; C:integral to plasma membrane; NAS.

DR GO; GO:0008083; F:growth factor activity; NAS.

DR GO; GO:0030297; F:transmembrane receptor protein tyrosine kin. . .; NAS.

DR GO; GO:0001558; P:regulation of cell growth; NAS.

DR GO; GO:0001170; P:transmembrane receptor protein tyrosine kin. . .; NAS.

DR InterPro; IPR007042; EGF_2.

DR InterPro; IPR006209; EGF_1like.

DR InterPro; IPR006210; IEGF.

DR InterPro; IPR002154; Neuregulin.

DR Pfam; PF00008; EGF_1.

DR Pfam; PF02158; Neuregulin; 1.

DR SMART; SM00181; EGF_1.

DR PROSITE; PS00022; EGF_1; 1.

DR PROSITE; PS01186; EGF_2; 1.

DR PROSITE; PS50026; EGF_3; 1.

DR EGF_1like domain; Growth factor; Multigene family; Transmembrane.

FT CHAIN 1 720 Pro-neuregulin-3, membrane-bound form.

FT CHAIN 1 359 Neuregulin-3.

FT DOMAIN 1 360 Extracellular-3.

FT TRANSMEM 361 383 Internal signal sequence (Potential).

FT DOMAIN 382 720 Cytoplasmic (Potential).

FT DOMAIN 105 285 Ser/Thr-rich.

FT DOMAIN 286 329 EGF-1like.

FT DOMAIN 5 8 Poly-Ala.

FT DOMAIN 13 21 Poly-Ala.

FT DOMAIN 26 34 Poly-Thr.

FT DOMAIN 127 135 Poly-Ser.

FT DOMAIN 252 260 Poly-Thr.

FT DOMAIN 262 265 Poly-Thr.

FT DISULFID 290 304 By similarity.

FT DISULFID 298 317 By similarity.

FT DISULFID 319 328 By similarity.

SQ SEQUENCE 720 AA; 77900 MW; A4D6F10DD95A693 CRC64;

Query Match 100.0%; Score 277; DB 1; Length 720;
Best Local Similarity 100.0%; Pred. No. 8.7e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HRPKCRDRLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDFL 47
DB 286 HRPKCRDRLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDFL 332

RESULT 3
NRG1_XENLA STANDARD; PRT; 677 AA.
ID NRG1_XENLA
AC O93383; Q9W6N0;


```

DR InterPro; IPR002154; Neuregulin.
DR Pfam; PF00008; EGF_1.
DR Pfam; PF00047; Ig_1.
DR Pfam; PF02158; Neuregulin; 1.
DR PRINTS; PRO1089; NEUREGULIN.
DR SMART; SM00181; EGF_1.
DR SMART; SM00409; IG_1.
DR SMART; SM00408; ICG2_1.
DR PROSITE; PS00022; EGF_1; 1.
DR PROSITE; PS01186; EGF_2; 1.
DR PROSITE; PS00026; EGF_3; 1.
DR PROSITE; PS00835; IG_Like; 1.
DR EGF-like domain.
DR NON_TER 1
FT NON_TER 394
SQ SEQUENCE 394 AA; 42980 MW; C183EB80927443F9 CRC64;

Query Match 41.0%; Score 113.5; DB 2; Length 394;
Best Local Similarity 34.8%; Pred. No. 9.1e-06;
Matches 16; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDGECFVETLTGSHKH-CRCKEGYGVRCQ 45
Db 169 HLVKCAEKETFCVNGGECFMVKDLSNPSRYLCKQCPGTGARCTE 214

RESULT 5
ID 035947 PRELIMINARY; PRT; 461 AA.
AC 035947;
DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
DI 01-MAR-2004 (TREMBLrel. 26, Last annotation update)
DE Neuregulin.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
NCBI_TaxId=10036;
RX 1
RA SEQUENCE FROM N.A.
RA Velasco J.A., Feijoo E., Avila M.A., Notario V.;
RA Submitted (APR-1997) to the EMBL/GenBank/DBJ databases.
RL -1- SIMILARITY: Contains 1 EGF-like domain.
CC EMBL; U96612; AAB71812.1; -.
DR HSSP; Q12780; IHR.
DR GO; GO:0005102; F:receptor binding; IEA.
DR GO; GO:0009790; P:embryonic development; IEA.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_Like.
DR InterPro; IPR006210; IEGF.
DR InterPro; IPR007110; Ig_Like.
DR InterPro; IPR003598; IG_c2.
DR InterPro; IPR002154; Neuregulin.
DR Pfam; PF00008; EGF_1.
DR Pfam; PF00047; Ig_1.
DR Pfam; PF02158; Neuregulin; 1.
DR PRINTS; PRO1089; NEUREGULIN.
DR SMART; SM00181; EGF_1.
DR SMART; SM00408; ICG2_1.
DR PROSITE; PS00022; EGF_1; 1.
DR PROSITE; PS01186; EGF_2; 1.
DR PROSITE; PS00026; EGF_3; 1.
DR PROSITE; PS00835; IG_Like; 1.
DR EGF-like domain.
DR NON_TER 1
FT NON_TER 394
SQ SEQUENCE 461 AA; 50890 MW; 935C9560F7148336 CRC64;

Query Match 41.0%; Score 113.5; DB 2; Length 461;
Best Local Similarity 34.8%; Pred. No. 1.1e-05;
Matches 16; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDGECFVETLTGSHKH-CRCKEGYGVRCQ 45

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Db 178 HLVKCAEKETFCVNGGECFMVKDLSNPSRYLCKQCPGTGARCTE 223

RESULT 6
ID 03721 PRELIMINARY; PRT; 462 AA.
AC 03721;
DT 01-MAR-2004 (TREMBLrel. 26, Created)
DT 01-MAR-2004 (TREMBLrel. 26, Last sequence update)
DI 01-MAR-2004 (TREMBLrel. 26, Last annotation update)
DE Neuregulin 1 isoform ndt43.
GN Name=NRG1;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
NCBI_TaxId=9606;
RX 1
RA SEQUENCE FROM N.A.
RA PubMed=12145742;
RA Stefansson H., Sigurdsson E., Steinhorsdottir V., Bjornsdottir S.,
RA Sigurdsson T., Ghosh S., Brynjolfsson J., Gunnarsdottir S.,
RA Ivarsson O., Chou T.T., Hjalason O., Birisdottir B., Jonsson H.,
RA Gudnadottir V.G., Gudmundsdottir E., Bjornsson A., Ingvarsson B.,
RA Ingason A., Sigfusson S., Hardardottir H., Harvey R.F., Brunner D.,
RA Mutel V., Gonzalo A., Lemke G., Sainz J., Johannesson G.,
RA Andresen T., Gudbjartsson D., Manolescu A., Frigge M.L., Gurney M.E.,
RA Kong A., Gulcher J.R., Petrusson H., Stefansson K.;
RT "Neuregulin 1 and Susceptibility to Schizophrenia."
RL Am. J. Hum. Genet. 71:0-0(2002).
CC -1- MISCELLANEOUS: The sequence shown here is derived from an
CC EMBL/GenBank/DBJ third party annotation (TPA) entry.
DR EMBL; BK000383; DAA0045.1; -.
DR HSSP; Q12780; IHR.
DR GO; GO:0005102; F:receptor binding; IEA.
DR GO; GO:0009790; P:embryonic development; IEA.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_Like.
DR InterPro; IPR007110; Ig_Like.
DR InterPro; IPR002154; Neuregulin.
DR Pfam; PF00008; EGF_1.
DR Pfam; PF00047; Ig_1.
DR Pfam; PF02158; Neuregulin; 1.
DR PRINTS; PRO1089; NEUREGULIN.
DR PROSITE; PS00022; EGF_1; 1.
DR PROSITE; PS01186; EGF_2; 1.
DR PROSITE; PS00026; EGF_3; 1.
DR PROSITE; PS00835; IG_Like; 1.
DR SEQUENCE 462 AA; 50848 MW; 8CAADB830056A80D CRC64;

Query Match 41.0%; Score 113.5; DB 2; Length 462;
Best Local Similarity 34.8%; Pred. No. 1.1e-05;
Matches 16; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDGECFVETLTGSHKH-CRCKEGYGVRCQ 45
Db 178 HLVKCAEKETFCVNGGECFMVKDLSNPSRYLCKQCPGTGARCTE 223

RESULT 7
NRG1 HUMAN STANDARD; PRT; 639 AA.
ID NRG1 HUMAN
AC 002257; 014667; P98202; 002298; 007110; 007111; Q12779;
AC Q12780; Q12781; Q12782; Q12783; Q12784; Q9UEB3;
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 16-OCT-2001 (Rel. 45, Last annotation update)
DT 25-OCT-2004 (Rel. 45, Last annotation update)
DE Pro-neuregulin-1 precursor (Pro-NRG1) [Contains: Neuregulin-1 (Neu
DE differentiation factor) (Heregulin) (HRG) (Breast cancer cell
DE differentiation factor p45) (Acetylcholine receptor inducing activity)
DE (ARIN) (Sensory and motor neuron-derived factor) (Glial growth
DE factor)].
GN Name=NRG1; Synonyms=GSF, HGL, HRGA, NDF, SMDF;
OS Homo sapiens (Human).

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OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RX NCBI_TaxID=9606;
 [1]
 RP SEQUENCE FROM N.A. (ISOFORMS 1; 6; 7 AND 8), AND PARTIAL SEQUENCE.
 RX MEDLINE=92271253; PubMed=1350381;
 RA Holmes W.E., Sliwkowski M.X., Akita R.W., Henzel W.J., Lee J.,
 RA Park J.W., Yansura D., Abadi N., Raab H., Lewis G.D., Shepard H.M.,
 RA Kiang W.-J., Wood W.I., Goeddel D.V., Vanden R.L.,
 RT "Identification of heregulin, a specific activator of p185erbB2,"
 RL Science 256:1205-1210(1992).
 RN [2]
 RP SEQUENCE FROM N.A. (ISOFORMS 2; 3; 4; 6; 7 AND 8).
 RC TISSUE=Kidney adenocarcinoma, and pituitary;
 RX MEDLINE=94158663; PubMed=7509448;
 RA Men D., Suggs S.V., Karunagaran D., Liu N., Cupples R.L., Luo Y.,
 RA Jansen A.M., Ben-Baruch N., Trollinger D.B., Jacobsen V.L.,
 RA Meng S.-Y., Lu H.S., Hu S., Chang D., Yang W., Yanigahara D.,
 RA Koski R.A., Yarden Y.;
 RT "Structural and functional aspects of the multiplicity of Neu
 RT differentiation factors";
 RL Mol. Cell. Biol. 14:1909-1919(1994).
 RN [3]
 RP SEQUENCE FROM N.A. (ISOFORM 1).
 RX MEDLINE=92208945; PubMed=1348215; DOI=10.1016/0092-8674(92)90131-U;
 RA Peles E., Bacus S.S., Koski R.A., Lu H.S., Wen D., Ogden S.G.,
 RA Levy R.B., Yarden Y.;
 RT "Isolation of the neu/HER-2 stimulatory ligand: a 44 kd glycoprotein
 RT that induces differentiation of mammary tumor cells";
 RL Cell 69:205-216(1992).
 RN [4]
 RP SEQUENCE FROM N.A. (ISOFORMS 8 AND 9).
 RC TISSUE=Brain;
 RX MEDLINE=93205115; PubMed=8096067; DOI=10.1038/362312a0;
 RA Marchionni M.A., Gooderall A.D.J., Chen M.S., Bermingham-McDonogh O.,
 RA Kirk C., Hendricks M., Danehy F., Mitsum D., Sudhalter J.,
 RA Kobayashi K., Wroblewski D., Lynch C., Balasarte M., Hiles I.,
 RA Davis J.B., Hsuan J.J., Totty N.F., Otsu M., McBurney R.N.,
 RA Waterfield M.D., Stroobant P., Gwynne D.;
 RT "Glia growth factors are alternatively spliced erbB2 ligands
 RT expressed in the nervous system";
 RL Nature 362:312-318(1993).
 RN [5]
 RP SEQUENCE FROM N.A. OF GAMMA-HERGULIN FUSION PROTEIN.
 RC TISSUE=Breast cancer;
 RX MEDLINE=97472144; PubMed=9333014; DOI=10.1038/sj.onc.1201317;
 RA Schaefer G., Fitzpatrick V.D., Sliwkowski M.X.;
 RT "Gamma-hergulin: a novel heregulin isoform that is an autocrine
 RT growth factor for the human breast cancer cell line, MDA-MB-175";
 RL Oncogene 15:1385-1394(1997).
 RN [6]
 RP SEQUENCE OF 1-210 FROM N.A.
 RA Schoumacher F., Herzer S., Flury N., Kueng W., Mueller H.,
 RA Deppenberger U.;
 RL Submitted (SEP-1997) to the EMBL/GenBank/DBJ databases.
 RN [7]
 RP SEQUENCE OF 19-27.
 RX MEDLINE=93366731; PubMed=7689552;
 RA Culouscou J.-M., Plowman G.W., Green J.M., Shoyab M.;
 RT "Characterization of a breast cancer cell differentiation factor that
 RT specifically activates the HER4/p180erbB4 receptor";
 RL J. Biol. Chem. 268:18407-18410(1993).
 RN [8]
 RP CHROMOSOMAL TRANSLOCATION.
 RX MEDLINE=99455251; PubMed=10523851; DOI=10.1038/sj.onc.1202950;
 RA Wang X.-Z., Jolicoeur E.M., Conte N., Chaffanet M., Zhang Y.,
 RA Mozziconacci M.-J., Feiner H., Birbaum D., Pebuque M.-J., Ron D.;
 RT "Gamma-hergulin is the product of a chromosomal translocation fusing
 RT the DOC4 and Hg1/NR1 genes in the MDA-MB-175 breast cancer cell
 RT line";
 RL Oncogene 18:5718-5721(1999).
 RN [9]
 RP CHROMOSOMAL TRANSLOCATION.

RX MEDLINE=20065180; PubMed=10597312; DOI=10.1038/sj.onc.1203136;
 RA Liu X., Baker E., Eyre H.J., Sutherland G.R., Zhou M.;
 RT "Gamma-hergulin: a fusion gene of DOC-4 and neuregulin-1 derived from
 RT a chromosome translocation";
 RL Oncogene 18:7110-7114(1999).
 RN [10]
 RP STRUCTURE BY NMR OF 175-241 (ISOFORM 1).
 RX MEDLINE=94341264; PubMed=8062828;
 RA Nagata K., Kohda D., Hatanaka H., Ichikawa S., Matsuda S.,
 RA Yamamoto T., Suzuki A., Inagaki F.;
 RT "Solution structure of the epidermal growth factor-like domain of
 RT heregulin-alpha, a ligand for p180erbB-4";
 RL EMO J. 13:3517-3523(1994).
 RN [11]
 RP FUNCTION: Direct ligand for ERBB3 and ERBB4 tyrosine kinase
 CC receptors. Concomitantly recruits ERBB3 and ERBB4 coreceptors,
 CC resulting in ligand-stimulated tyrosine phosphorylation and
 CC activation of the ERBB receptors. The multiple isoforms perform
 CC diverse functions such as inducing growth and differentiation of
 CC epithelial, glial, neuronal, and skeletal muscle cells; inducing
 CC expression of acetylcholine receptor in synaptic vesicles during
 CC the formation of the neuromuscular junction; stimulating
 CC lobuloalveolar budding and milk production in the mammary gland
 CC and inducing differentiation of mammary tumor cells; stimulating
 CC Schwann cell proliferation; implication in the development of the
 CC myocardium such as trabeculation of the developing heart.
 CC [12]
 RP SUBUNIT: The cytoplasmic domain interacts with the LIM domain
 CC region of LIMK1 (By similarity).
 CC [13]
 RP SUBCELLULAR LOCATION: Exists as an type I membrane protein and as
 CC a proteolytically released soluble growth factor form. The
 CC membrane-bound form does not seem to be active. The secreted
 CC isoform 9 has a signal peptide. The isoform 8 may be nuclear.
 CC [14]
 RP ALTERNATIVE PRODUCTS:
 CC Event=Alternative splicing; Named isoforms=9;
 CC Comment=Additional isoforms seem to exist. Isoforms have been
 CC classified as type I NRGs (isoforms with an Ig domain and a
 CC glycosylation domain, isoforms 1-8), type II NRGs (isoforms with
 CC an Ig domain but no glycosylation domain, isoform 9) and type
 CC III NRGs (isoforms with a Cys-rich domain, isoform 10). All
 CC these isoforms perform distinct tissue-specific functions;
 CC Name=1; Synonyms=Alpha;
 CC IsoId=Q02297-1; Sequence=Displayed;
 CC Name=2; Synonyms=Alpha1A;
 CC IsoId=Q02297-2; Sequence=VSP_003431;
 CC Name=3; Synonyms=Alpha2B;
 CC IsoId=Q02297-3; Sequence=VSP_003434, VSP_003435;
 CC Name=4; Synonyms=Alpha3;
 CC IsoId=Q02297-4; Sequence=VSP_003432, VSP_003433;
 CC Name=5; Synonyms=Beta1, Beta1A;
 CC IsoId=Q02297-6; Sequence=VSP_003428;
 CC Name=6; Synonyms=Beta2;
 CC IsoId=Q02297-7; Sequence=VSP_003427;
 CC Name=7; Synonyms=Beta3, GGFHFB1;
 CC IsoId=Q02297-8; Sequence=VSP_003429, VSP_003430;
 CC Name=8; Synonyms=GGF2, GGFHFB2;
 CC IsoId=Q02297-9; Sequence=VSP_003425, VSP_003426, VSP_003429,
 CC VSP_003430;
 CC Name=10; Synonyms=SMDF;
 CC IsoId=Q15491-1; Sequence=External;
 CC [15]
 RP TISSUE SPECIFICITY: Type I isoforms are the predominant forms
 CC expressed in the endocardium. Isoform alpha is expressed in
 CC breast, ovary, testis, prostate, heart, skeletal muscle, lung,
 CC placenta, liver, kidney, salivary gland, small intestine and brain,
 CC but not in uterus, stomach, pancreas, and spleen. Isoform 3 is the
 CC predominant form in mesenchymal cells and in nonneutonal organs,
 CC whereas isoform 5 is the major neuronal form. Isoform 8 is
 CC expressed in spinal cord and brain. Isoform 9 is the major form in
 CC skeletal muscle cells. In the nervous system it is expressed in
 CC spinal cord and brain. Also detected in adult heart, placenta,
 CC lung, liver, kidney, and pancreas.
 CC [16]
 RP DEVELOPMENTAL STAGE: Detectable at early embryonic ages.
 CC [17]
 RP DOMAIN: The cytoplasmic domain may be involved in the regulation
 CC of trafficking and proteolytic processing. Regulation of the
 CC proteolytic processing involves initial intracellular domain

```

CC dimerization (By similarity).
CC -1- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like
CC domain.
CC -1- P-TM: Proteolytic cleavage close to the plasma membrane on the
CC external face leads to the release of the soluble growth factor
CC form.
CC -1- P-TM: Extensive glycosylation precedes the proteolytic cleavage (By
CC similarity).
CC -1- DISEASE: Involved in a rare t(8;11) chromosomal translocation that
CC fuses the 5' end of ODZ4 (isoform 8). The product of this
CC translocation was first thought to be an alternatively spliced
CC isoform, called gamma-hergulin. Gamma-hergulin is a soluble
CC activating ligand for the ERBB2-ERBB3 receptor complex and acts as
CC an autocrine growth factor in a specific breast cancer cell line
CC (MDA-MB-175). Not detected in breast carcinoma samples, including
CC ductal, lobular, medullary, and mucinous histological types,
CC neither in other breast cancer cell lines.
CC -1- SIMILARITY: Belongs to the neuroligin family.
CC -1- SIMILARITY: Contains 1 EGF-like domain.
CC -1- SIMILARITY: Contains 1 immunoglobulin-like C2-type domain.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation-
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@sb-sib.ch).
CC -----
DR EMBL; M94165; AAA58638.1; -
DR EMBL; M94166; AAA58639.1; -
DR EMBL; M94167; AAA58640.1; -
DR EMBL; M94168; AAA58641.1; -
DR EMBL; U02325; AAA19950.1; -
DR EMBL; U02326; AAA19951.1; -
DR EMBL; U02327; AAA19952.1; -
DR EMBL; U02328; AAA19953.1; -
DR EMBL; U02329; AAA19954.1; -
DR EMBL; U02330; AAA19955.1; -
DR EMBL; U12260; AAB59622.1; -
DR EMBL; U12261; AAB59358.1; -
DR -----
Query Match 41.0%; Score 113.5; DB 1; Length 639;
Best Local Similarity 34.8%; Pred. No. 1.5e-05;
Matches 16; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

QY 1 HRPKCDKDLAVCLNDGECFVETLTGSHKH-CRCKEGYGVGRCDQ 45
DB 177 HLKVCAREKTEFCVNGBCFVWVDLSNPSRYLCKQCPFTGARTC 222

RESULT 8
QZRTV8 PRELIMINARY; PRT; 640 AA.
AC QZRTV8;
DT 01-MAR-2004 (TREMBLrel. 26, Created)
DT 01-MAR-2004 (TREMBLrel. 26, Last sequence update)
DT 01-MAR-2004 (TREMBLrel. 26, Last annotation update)
DE Neuroligin 1 isoform HRG-alpha.
GN Name=NRG1;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX PubMed=12145742;
RA Stefansson H., Sigurdsson E., Steinthorsdottir V., Bjornsdottir S.,
RA Sigurdsson T., Ghosh S., Brynjolfsson O., Gunnarsdottir S.,
RA Ivarsson O., Chou T.T., Hjalason O., Biggsdottir B., Jonsson H.,
RA Gudnadottir V.G., Gudmundsdottir E., Bjornsson A., Ingvarsson B.,
RA Ingason A., Sigfusson S., Hardardottir H., Harvey R.P., Brunner D.,
RA Mutel V., Gonzalo A., Lemke G., Sainz J., Johannesson G.,

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RA Andersson T., Gudbjartsson D., Manolescu A., Frigge M.L., Gurney M.E.,
RA Kong A., Gulcher J.R., Petursson H., Stefansson K.,
RA "Neuroligin 1 and Susceptibility to Schizophrenia.",
RA Am. J. Hum. Genet. 71:0-0(2002).
CC -1- MISCELLANEOUS: The sequence shown here is derived from an
CC EMBL/GenBank/DBJ third party annotation (TPA) entry.
CC -----
DR EMBL; BK000383; DAA00048.1; -
DR HSSP; Q12780; IHRE.
DR GO; GO:0005102; F:receptor binding; IEA.
DR GO; GO:0009790; P:embryonic development; IEA.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR007110; IG-like.
DR InterPro; IPR002154; Neuroligin.
DR Pfam; PF00008; EGF_1.
DR Pfam; PF00047; Ig_1.
DR Pfam; PF02158; Neuroligin_1.
DR PRINTS; PR01089; NEUREGULIN.
DR PROSITE; PS00022; EGF_1; 1.
DR PROSITE; PS01186; EGF_2; 1.
DR PROSITE; PS50026; EGF_3; 1.
DR PROSITE; PS50089; PTH_HPR_SER; UNKNOWN_1.
KW EGF-like domain.
FT NON_TER 1
FT NON_TER 298
SQ SEQUENCE 298 AA; 32851 MW; BD76F014C2B33026 CRC64;

QY 1 HRPKCDKDLAVCLNDGECFVETLTGSHKH-CRCKEGYGVGRCDQ 45
DB 178 HLKVCAREKTEFCVNGBCFVWVDLSNPSRYLCKQCPFTGARTC 223

RESULT 9
QZES49 PRELIMINARY; PRT; 298 AA.
AC QZES49;
DT 01-MAR-2001 (TREMBLrel. 16, Created)
DT 01-MAR-2001 (TREMBLrel. 16, Last sequence update)
DT 01-MAR-2004 (TREMBLrel. 26, Last annotation update)
DE SMDP neuroligin alpha 2b (Fragment).
GN Name=Nrg1;
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RX STRAIN=BDIX;
RA Carroll S.L., Anderson K.D., Frohnert P.W.,
RA Submitted (OCT-1999) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: Contains 1 EGF-like domain.
DR EMBL; AF194440; AAG28429.1; -
DR HSSP; Q12780; IHRE.
DR GO; GO:0005102; F:receptor binding; IEA.
DR GO; GO:0009790; P:embryonic development; IEA.
DR InterPro; IPR000742; EGF_2.
DR InterPro; IPR006209; EGF_like.
DR InterPro; IPR002114; Hpr_Serp_S.
DR InterPro; IPR006210; IEGF.
DR InterPro; IPR002154; Neuroligin.
DR Pfam; PF00008; EGF_1.
DR Pfam; PF02158; Neuroligin_1.
DR PRINTS; PR01089; NEUREGULIN.
DR SMART; SM00181; EGF_1.
DR PROSITE; PS00022; EGF_1; 1.
DR PROSITE; PS01186; EGF_2; 1.
DR PROSITE; PS50026; EGF_3; 1.
DR PROSITE; PS50089; PTH_HPR_SER; UNKNOWN_1.
KW EGF-like domain.
FT NON_TER 1
FT NON_TER 298
SQ SEQUENCE 298 AA; 32851 MW; BD76F014C2B33026 CRC64;

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Query Match 40.3%; Score 111.5; DB 2; Length 298;
 Best Local Similarity 34.8%; Pred. No. 1.2e-05;
 Matches 16; Conservative 13; Mismatches 16; Indels 1; Gaps 1;

Qy 1 HFKPCRDLDLAVCLNDECFVETLTGSHKH-CRCKEGYGVRCDO 45
 48 HLIKCAKEKTEFCVNGGECFTVKDLSNPSRYLCKQCPFTGACRTE 93

Db

RESULT 10

Q9ESB0 PRELIMINARY; PRT; 695 AA.

AC Q9ESB0; 01-MAR-2001 (Tremblrel. 16, Created)
 DT 01-MAR-2001 (Tremblrel. 16, Last sequence update)
 DT 01-MAR-2004 (Tremblrel. 26, Last annotation update)
 DE SHDF neuregulin alpha 2a.
 GN Name=Nrg1;
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OC NCBI_TaxID=10116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=BDIX;
 RA Carroll S.L., Anderson K.D., Frohnert P.W.;
 RL Submitted (OCT-1999) to the EMBL/Genbank/DBJ databases.
 CC -1- SIMILARITY: Contains 1 EGF-like domain.
 DR EMBL; AF194439; AAC28428.1; -.
 DR HSSP; Q12780; IHRE.
 DR GO; GO:0005102; F:receptor binding; IEA.
 DR GO; GO:0009780; P:embryonic development; IEA.
 DR InterPro; IPR000742; EGF_2.
 DR InterPro; IPR006209; EGF-like.
 DR InterPro; IPR002114; HPr Serp_S.
 DR InterPro; IPR006210; IEGF.
 DR InterPro; IPR003154; Neuregulin.
 DR Pfam; PF00008; EGF_1.
 DR Pfam; PF02158; Neuregulin; 1.
 DR PRINTS; PRO1089; NEUREGULIN.
 DR SMART; SM00181; EGF_1.
 DR PROSITE; PS00022; EGF_1; 1.
 DR PROSITE; PS01186; EGF_2; 1.
 DR PROSITE; PS00026; EGF_3; 1.
 DR PROSITE; PS00589; PTS_HPR_SER; UNKNOWN_1.
 DR EGF-like domain.
 KM EGF-like domain.
 SQ SEQUENCE 695 AA; 75646 MW; 5277F2CBA2FB6878 CRC64;

Query Match 40.3%; Score 111.5; DB 2; Length 695;
 Best Local Similarity 34.8%; Pred. No. 2.8e-05;
 Matches 16; Conservative 13; Mismatches 16; Indels 1; Gaps 1;

Qy 1 HFKPCRDLDLAVCLNDECFVETLTGSHKH-CRCKEGYGVRCDO 45
 234 HLIKCAKEKTEFCVNGGECFTVKDLSNPSRYLCKQCPFTGACRTE 279

Db

RESULT 11

NRG4 MOUSE STANDARD; PRT; 115 AA.

AC Q9WTK4; 16-OCT-2001 (Rel. 40, Created)
 DT 16-OCT-2001 (Rel. 40, Last sequence update)
 DT 05-JUL-2004 (Rel. 44, Last annotation update)
 DE Pro-neuregulin-4, short isoform (Pro-NRG4) [Contains: Neuregulin-4
 (NRG-4)].
 GN Name=Nrg4;
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OC NCBI_TaxID=10090;
 RN [1]

RP SEQUENCE FROM N.A.
 RC STRAIN=C57BL/6J; TISSUE=Liver;
 RX MEDLINE=99276099; PubMed=10348342; DOI=10.1038/951.0nc.1202631;
 RA Harari D., Tzahar E., Romano J., Shelly M., Pierce J.H., Andrews G.C.,
 RA Yarden Y.;
 RT "Neuregulin-4: a novel growth factor that acts through the ErbB-4
 receptor tyrosine kinase";
 RL Oncogene 18:2681-2689(1999).
 CC -1- FUNCTION: Low affinity ligand for the ERBB4 tyrosine kinase
 receptor. Concomitantly recruits ERBB1 and ERBB2 coreceptors,
 resulting in ligand-stimulated tyrosine phosphorylation and
 activation of the ERBB receptors. Does not bind to the ERBB1,
 ERBB2 and ERBB3 receptors.
 CC -1- SUBCELLULAR LOCATION: Exists as an type I membrane protein and as
 a proteolytically released soluble growth factor form. The
 membrane-bound form does not seem to be active (by similarity).
 CC -1- ALTERNATIVE PRODUCTS:
 CC Event=Alternative splicing; Named isoforms=1;
 CC Comment=At least 3 isoforms may be produced;
 CC Name=1;
 CC IsoId=Q9WTK4-1; Sequence=Displayed;
 CC -1- TISSUE SPECIFICITY: Highly expressed in pancreas; weakly expressed
 in muscle.
 CC -1- DOMAIN: The cytoplasmic domain may be involved in the regulation
 of trafficking and proteolytic processing. Regulation of the
 proteolytic processing involves initial intracellular domain
 dimerization (by similarity).
 CC -1- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like
 domain (by similarity).
 CC -1- PTM: Proteolytic cleavage close to the plasma membrane on the
 external face leads to the release of the soluble growth factor
 form (by similarity).
 CC -1- PTM: Extensive glycosylation precedes the proteolytic cleavage (by
 similarity).
 CC -1- SIMILARITY: Belongs to the neuregulin family.
 CC -1- SIMILARITY: Contains 1 EGF-like domain.
 CC -----
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 CC -----
 DR EMBL; AF083067; AAD21874.1; -.
 DR HSSP; Q12780; IHRE.
 DR MGD; MGI:193383; Nrg4.
 DR InterPro; IPR001335; Nrg4.
 DR InterPro; IPR000742; EGF_1.
 DR InterPro; IPR006209; EGF-like.
 DR InterPro; IPR006210; IEGF.
 DR Pfam; PF00008; EGF_1.
 DR PRINTS; PRO0009; EGFPTG.
 DR SMART; SM00181; EGF_1.
 DR PROSITE; PS00022; EGF_1; 1.
 DR PROSITE; PS01186; EGF_2; FALSE_NEG.
 DR PROSITE; PS00026; EGF_3; 1.
 DR Alternative splicing; EGF-like domain; Glycoprotein; Growth factor;
 KM Multigene family; Transmembrane.
 FT CHAIN 1 115
 FT CHAIN 1 115
 FT DOMAIN 1 61
 FT DOMAIN 1 62
 FT TRANSMEM 63 83
 FT DOMAIN 84 115
 FT DOMAIN 5 46
 FT DISULFID 9 23
 FT DISULFID 17 34
 FT DISULFID 36 45
 FT CARBOHYD 39 39
 FT CARBOHYD 60 60
 SQ SEQUENCE 115 AA; 12743 MW; 989A1E376F857B49 CRC64;


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Query Match          39.7%; Score 110; DB 1; Length 115;
Best Local Similarity 42.2%; Pred. No. 7.1e-06;
Matches 19; Conservative 8; Mismatches 16; Indels 2; Gaps 1;

QY 1 HKPKCRDNLAVCLNDGECFVETLTGSHKRCCKEGYGVRCDO 45
Db 5 HEPGCPGRHRSFCLNGICVYIPTIPS--PFCRCINVTGARCEE 47

RESULT 12
NRG4 HUMAN STANDARD; PRT; 115 AA.
ID NRG4 HUMAN STANDARD; PRT; 115 AA.
AC 08MWG1;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 41, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Pro-neuregulin-4, short isoform (Pro-NRG4) [Contains: Neuregulin-4
(NRG-4)].
GN Name=NRG4;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_Taxid=9606;
RN 1;
RP SEQUENCE FROM N.A.
RC TISSUE=Liver;
RX MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;
RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA Klausner R.D., Collins F.S., Wagner L.H., Shenmen C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.U., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullaly S.J.,
RA Bosak S.A., McMan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA Richards S., Morley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Villalon D.K., Munzy D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Fahy J., Helton E., Ketteman M., Madan A., Rodriguez S., Sanchez A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Butcherfield Y.S.N., Krzywinski M.I., Skalska U., Smalins D.E.,
RA Scherch A., Schein J.E., Jones S.J.M., Merra M.A.;
RT "Generation and initial analysis of more than 15,000 full-length human
and mouse cDNA sequences."
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
CC -1- FUNCTION: Low affinity ligand for the ERBB4 tyrosine kinase
receptor. Concomitantly recruits ERBB1 and ERBB2 coreceptors,
resulting in ligand-stimulated tyrosine phosphorylation and
activation of the ERBB receptors. Does not bind to the ERBB1,
ERBB2 and ERBB3 receptors (By similarity).
CC -1- SUBCELLULAR LOCATION: Exists as an type I membrane protein and as
a proteolytically released soluble growth factor form. The
membrane-bound form does not seem to be active (By similarity).
CC -1- DOMAIN: The cytoplasmic domain may be involved in the regulation
of trafficking and proteolytic processing. Regulation of the
proteolytic processing involves initial intracellular domain
dimerization (By similarity).
CC -1- DOMAIN: ERBB receptor binding is elicited entirely by the EGF-like
domain (By similarity).
CC -1- PTM: Proteolytic cleavage close to the plasma membrane on the
external face leads to the release of the soluble growth factor
form (By similarity).
CC -1- PTM: Extensive glycosylation precedes the proteolytic cleavage (By
similarity).
CC -1- SIMILARITY: Belongs to the neuregulin family.
CC -1- SIMILARITY: Contains 1 EGF-like domain.
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; BC017568; AAH17568.1; -.
DR HSSP; P01132; IGR5.
DR InterPro; IPR001336; EGF 1.
DR InterPro; IPR000742; EGF 2.
DR InterPro; IPR006209; EGF-like.
DR Pfam; PF00008; EGF, 1.
DR PRINTS; PR00009; EGF_TGF.
DR PROSITE; PS00022; EGF 1; 1.
DR PROSITE; PS01186; EGF 2; FALSE_NEG.
DR PROSITE; PS50026; EGF 3; 1.
KW EGF-like domain; Glycoprotein; Growth factor; Multigene family;
KW Transmembrane.
FT CHAIN 1 115 Pro-neuregulin-4, membrane-bound form.
FT DOMAIN 1 61 Neuregulin-4.
FT TRANSMEM 63 83 Extracellular (Potential).
FT DOMAIN 84 115 Internal signal sequence (Potential).
FT DOMAIN 5 46 Cytoplasmic (Potential).
FT DISULFID 9 23 EGF-like.
FT DISULFID 17 23 By similarity.
FT DISULFID 36 45 By similarity.
FT CARBOHYD 39 39 N-linked (GlcNAc...) (Potential).
SQ SEQUENCE 115 AA; 12722 MW; 72F962E2D0F37AC3 CRC64;

Query Match          39.4%; Score 109; DB 1; Length 115;
Best Local Similarity 42.2%; Pred. No. 9.5e-06;
Matches 19; Conservative 7; Mismatches 17; Indels 2; Gaps 1;

QY 1 HKPKCRDNLAVCLNDGECFVETLTGSHKRCCKEGYGVRCDO 45
Db 5 HEPGCPGRHRSFCLNGICVYIPTIPS--PFCRCINVTGARCEE 47

RESULT 13
Q6PK61 PRELIMINARY; PRT; 241 AA.
ID Q6PK61 PRELIMINARY; PRT; 241 AA.
AC Q6PK61;
DT 05-JUL-2004 (TRMBLrel. 27, Created)
DT 05-JUL-2004 (TRMBLrel. 27, Last sequence update)
DT 05-JUL-2004 (TRMBLrel. 27, Last annotation update)
DE Neuregulin 1, isoform HRG-beta3.
GN Name=NRG1;
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_Taxid=9606;
RN 1;
RP SEQUENCE FROM N.A.
RC TISSUE=ovary;
RX MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;
RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA Klausner R.D., Collins F.S., Wagner L.H., Shenmen C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.U., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullaly S.J.,
RA Bosak S.A., McMan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA Richards S., Morley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Villalon D.K., Munzy D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Fahy J., Helton E., Ketteman M., Madan A., Rodriguez S., Sanchez A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M., Butcherfield Y.S.,
RA Krzywinski M.I., Skalska U., Smalins D.E., Scherch A., Schein J.E.,
RA Jones S.J.M., Merra M.A.;
RT "Generation and initial analysis of more than 15,000 full-length human
and mouse cDNA sequences."

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Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).

Query Match

Best Local Similarity 37.7%; Score 104.5; DB 2; Length 241;

Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

1 HFKPCRDKDLAVCLNDECFVITLTGSHKH-CRCKEGYGVRCDOFL 47

178 HLVKCAKEKTFVNGGCFMVNKLSPSRYLCKCPNEFTGDRCONV 225

RESULT 14

Query Match

Best Local Similarity 37.7%; Score 104.5; DB 2; Length 241;

Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

1 HFKPCRDKDLAVCLNDECFVITLTGSHKH-CRCKEGYGVRCDOFL 47

178 HLVKCAKEKTFVNGGCFMVNKLSPSRYLCKCPNEFTGDRCONV 225

RESULT 14

Query Match

Best Local Similarity 37.7%; Score 104.5; DB 2; Length 241;

Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

1 HFKPCRDKDLAVCLNDECFVITLTGSHKH-CRCKEGYGVRCDOFL 47

178 HLVKCAKEKTFVNGGCFMVNKLSPSRYLCKCPNEFTGDRCONV 225

Query Match

Best Local Similarity 37.7%; Score 104.5; DB 2; Length 241;

Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

1 HFKPCRDKDLAVCLNDECFVITLTGSHKH-CRCKEGYGVRCDOFL 47

178 HLVKCAKEKTFVNGGCFMVNKLSPSRYLCKCPNEFTGDRCONV 225

Query Match

Best Local Similarity 37.7%; Score 104.5; DB 2; Length 241;

Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

1 HFKPCRDKDLAVCLNDECFVITLTGSHKH-CRCKEGYGVRCDOFL 47

178 HLVKCAKEKTFVNGGCFMVNKLSPSRYLCKCPNEFTGDRCONV 225

Query Match

Best Local Similarity 37.7%; Score 104.5; DB 2; Length 241;

Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

1 HFKPCRDKDLAVCLNDECFVITLTGSHKH-CRCKEGYGVRCDOFL 47

178 HLVKCAKEKTFVNGGCFMVNKLSPSRYLCKCPNEFTGDRCONV 225

Search completed: May 4, 2005, 12:07:05

Job time : 177 secs

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OM protein - protein search, using sw model

Run on: May 4, 2005, 11:55:41 ; Search time 39 Seconds
(without alignments)
115.954 Million cell updates/sec

Title: US-09-107-979-4

Perfect score: 277

Sequence: 1 HFKPCRDKDLAYCLINDECFVIELTGS...SHKHCRCKEGYGVRCDFL 47

Scoring table: BIOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	277	100.0	713	2 T44447	neuregulin-3 [impo
2	113.5	41.0	125	2 I38405	neu differentiatio
3	113.5	41.0	462	2 I38404	neu differentiatio
4	113.5	41.0	640	2 A43273	heregulin precurs
5	111.5	40.3	639	2 I61719	neu differentiatio
6	105.5	38.1	125	2 S62676	heregulin isoform
7	104.5	37.7	175	2 I38408	neu differentiatio
8	104.5	37.7	241	2 D43273	heregulin precurs
9	104.5	37.7	296	2 A56943	glial growth facto
10	104.5	37.7	241	2 S32357	senory/motor neur
11	104.5	37.7	422	2 S32357	glial growth facto
12	104.5	37.7	637	2 C43273	heregulin precurs
13	104.5	37.7	645	2 B43273	heregulin, splice
14	102.5	37.0	230	2 A56210	neu differentiatio
15	102.5	37.0	636	2 I61718	neu differentiatio
16	102.5	37.0	662	2 I61722	neu differentiatio
17	98.5	35.6	602	2 A45769	acetylcholine rece
18	92.5	33.4	2180	2 T29764	hypothetical prote
19	90	32.5	850	2 JC5700	EBDB kinase activa
20	90	32.5	860	2 JC5702	EBDB kinase activa
21	90	32.5	868	2 JC5701	EBDB kinase activa
22	85	30.7	80	1 EGVZSF	growth factor - ra
23	84.5	30.5	1220	2 A56136	EBDB kinase activa
24	83	30.0	46	2 JT0747	EBDB kinase activa
25	83	30.0	162	2 S68401	epiregulin - rat
26	83	30.0	861	2 A48825	epiregulin precurs
27	83	30.0	2531	2 A46019	Notch homolog Molec
28	82.5	29.8	177	2 A37408	Notch-1 protein -
29	82	29.6	85	1 EGVZM1	betacellulin precu
					growth factor - my

30	82	29.6	230	2 A44074	probable EGF-like
31	82	29.6	264	2 T22380	hypothetical prote
32	80.5	29.1	178	2 JC1467	betacellulin precu
33	80	28.9	907	2 T27317	hypothetical prote
34	79.5	28.7	140	1 MNV29	growth factor - va
35	79.5	28.7	140	1 T30766	growth factor - va
36	79.5	28.7	142	1 MNV23C	growth factor - va
37	79.5	28.7	159	1 S27195	transforming growt
38	79.5	28.7	159	1 MFR11	transforming growt
39	79.5	28.7	159	1 S7497	transforming growt
40	79	28.5	2531	2 I5188	notch protein homo
41	78	28.2	1207	1 EGHU	epidermal growth f
42	77.5	28.0	722	2 I48324	DEIRA-like 1 - mou
43	77.5	28.0	2352	2 T30201	Notch homolog prot
44	76.5	27.6	1372	2 T52933	hypothetical prote
45	76	27.4	482	2 JC5092	E-selectin - pig

ALIGNMENTS

bad date

RESULT 1					
T44447	neuregulin-3 [imported] - mouse				
C/Species:	Mus musculus (house mouse)				
C/Date:	21-Jan-2000 #sequence_revision 21-Jan-2000 #text_change 09-Jul-2004				
C/Accession:	T44447				
R/Zhang, D.; Sliwkowski, M.X.; Mark, M.; Frantz, G.; Akita, R.; Sun, Y.; Hillan, K.; Crow					
Proc. Natl. Acad. Sci. U.S.A. 94, 9562-9567, 1997					
A/Title:	Neuregulin-3 (NRG3): A novel neural tissue-enriched protein that binds and activ				
A/Reference number:	222773; PMID:97420720; PMID:97420720; PMID:97420720				
A/Accession:	T44447				
A/Status:	preliminary; translated from GB/EMBL/DBJ				
A/Molecule type:	mRNA				
A/Residues:	1-713 <ZHA>				
A/Cross-references:	UNIPROT:O35181; EMBL:AF010130; NID:g2429163; PIDN:AAB70914.1; PID:g242				
C/Genetics:					
A/Gene:	NRG3				
C/Superfamily:	mouse neuregulin-3				
Query Match					
Best Local Similarity 100.0%; Score 277; DB 2; Length 713;					
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;					
RESULT 2					
I38405	neu differentiation factor - human (fragment)				
C/Species:	Homo sapiens (man)				
C/Date:	29-May-1998 #sequence_revision 29-May-1998 #text_change 08-Sep-2002				
C/Accession:	I38405				
R/Men, D.; Sungs, S.V.; Karmunagan, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;					
Mol. Cell. Biol. 14, 1909-1919, 1994					
A/Title:	Structural and functional aspects of the multiplicity of Neu differentiation fac				
A/Reference number:	A56210; PMID:94158863; PMID:7509448				
A/Accession:	I38405				
A/Status:	preliminary; translated from GB/EMBL/DBJ				
A/Molecule type:	mRNA				
A/Residues:	1-125 <RES>				
A/Cross-references:	EMBL:U02327; NID:g408404; PIDN:AAA19952.1; PID:g408405				
C/Superfamily:	human heregulin; EGF homology; immunoglobulin homology				
Query Match					
Best Local Similarity 41.0%; Score 113.5; DB 2; Length 125;					
Matches 16; Conservative 14; Mismatches 15; Indels 1; Gaps 1;					
Query					
1 HFKPCRDKDLAYCLINDECFVIELTGS...SHKHCRCKEGYGVRCDFL 45					
Db					
288 HFKPCRDKDLAYCLINDECFVIELTGS...SHKHCRCKEGYGVRCDFL 334					

RESULT 3
138404
new differentiation factor - human
C/Species: Homo sapiens (man)
C/Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 09-Jul-2004
C/Accession: 138404
R/Wen, D./ Sugars, S.V.; Kannagaran, D./ Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.
Mol. Cell. Biol. 14, 1909-1919, 1994
A/Title: Structural and functional aspects of the multiplicity of Neu differentiation factor
A/Reference number: A56210; MUID:94158863; PMID:7509448
A/Accession: 138404
A/Status: preliminary; translated from GB/EMBL/DBJ
A/Molecule type: mRNA
A/Residues: 1-462 <RES>
C/Cross-references: UNIPROT:002297, EMBL:U02326, NID:9408402, PIDD:AAA1995.1, PID:9408404
C/Superfamily: human heregulin; EGF homology; immunoglobulin homology

Query Match 41.0%; Score 113.5; DB 2; Length 462;
Best Local Similarity 34.8%; Pred. No. 1.8e-05;
Matches 16; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

1 HFRCRDKDLAYCLNDGCEVFIEFTLGSCHK-CRCKEGYQGRCDQ 45
178 HLYVCAEKETFCVNGGCEFWKDLNSPRLCKQGFRTGACTE 223

RESULT 4
A43273
heregulin precursor, splice form alpha - human
C/Alternate names: breast cancer cell differentiation factor p45; Neu differentiation factor
C/Species: Homo sapiens (man)
C/Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 08-Sep-2002
C/Accession: A43273; A48498; A38155
R/Holmes, W.E.; Sliwkowski, M.X.; Akita, R.W.; Hensel, W.J.; Lee, J.; Park, J.W.; Vansant
Science 256, 1205-1210, 1992
A/Title: Identification of heregulin, a specific activator of p185(erbB2).
A/Reference number: A43273; MUID:92271253; PMID:1350381
A/Accession: A43273
A/Status: nucleic acid sequence not shown; not compared with conceptual translation
A/Molecule type: mRNA
A/Residues: 1-640 <HOL>
A/Experimental source: Breast tumor cell line, MDA-MB-231, ATCC HTB 26
A/Note: Sequence extracted from NCBI backbone (NCBI:P103250)
R/Culoucou, J.M.; Plowman, G.D.; Carlton, G.W.; Green, J.M.; Shoyab, M.
J. Biol. Chem. 266, 18407-18410, 1993
A/Title: Characterization of a breast cancer cell differentiation factor that induces
A/Reference number: A48498; MUID:93366731; PMID:7689552
A/Accession: A48498
A/Molecule type: protein
A/Residues: 20-21, 'X', 23-24, 'XX', 27-28 <CTL>
R/Petes, E.; Bacus, S.S.; Koski, R.A.; Lu, H.S.; Wen, D.; Ogden, S.G.; Levy, R.B.; Yarden
Cell 69, 205-216, 1992
A/Title: Isolation of the neu/HER-2 stimulatory ligand: a 44 kd glycoprotein that induces
A/Reference number: A38155; MUID:92208945; PMID:1348215
A/Accession: A38155
A/Molecule type: protein
A/Residues: 'X', 15-16, 'X', 18-20, 'RG', 23-24, 'GP', 27, 'E', 29, 'XP', 32-36 <PEL>
A/Note: Sequence extracted from NCBI backbone (NCBI:P13477)
C/Genetics:
A/Gene: GDB:HGL
A/Cross-references: GDB:132656; OMIM:142445
A/Map position: 8p22-8p11
C/Superfamily: human heregulin; EGF homology; immunoglobulin homology
C/Keywords: alternative splicing; glycoprotein
F:182-221/Domain: EGF homology <EGF>

Query Match 41.0%; Score 113.5; DB 2; Length 640;
Best Local Similarity 34.8%; Pred. No. 2.4e-05;
Matches 16; Conservative 14; Mismatches 15; Indels 1; Gaps 1;

1 HFRCRDKDLAYCLNDGCEVFIEFTLGSCHK-CRCKEGYQGRCDQ 45

Db 178 HUVCAEKEKTFVCVNGGECFVWKDLSNPSRYLCKQCPETGARCTE 223

new differentiation factor - rat
161719

RESULT 5

C:Species: Rattus norvegicus (Norway rat)
C:Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 09-Jul-2004
C:Accession: 161719, 161723, 161716, 161724, A38220
R:Men, D.; Suggs, S.V.; Karmagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A:Title: Structural and functional aspects of the multiplicity of Neu differentiation fac
A:Reference number: A56210; MUID:94158863; PMID:7509448
A:Accession: 161719
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-639 <RES>
A:Cross-references: UNIPROT:P43322; EMBL:U02319; NID:G408388; PIDD:AAA19944.1; PID:G40838
A:Accession: 161723
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-639 <RE2>
A:Cross-references: EMBL:U02323; NID:G408396; PIDD:AAA19948.1; PID:G408397
A:Accession: 161716
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-422, 'H', 'NL', 637-638, 'ELRRNKAYRSKCMQIQISATHLRPSITTHGFL', <RE3>
A:Cross-references: EMBL:U02316; NID:G408382; PIDD:AAA19941.1; PID:G408383
A:Accession: 161717
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-422, 'H', 'NL', 637-638, 'ELRRNKAYRSKCMQIQISATHLRPSITTHGFL', <RE4>
A:Cross-references: EMBL:U02317; NID:G408384; PIDD:AAA19942.1; PID:G408385
A:Accession: 161724
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-422 <RE5>
A:Cross-references: EMBL:U02324; NID:G408398; PIDD:AAA19949.1; PID:G408399
R:Men, D.; Pelas, E.; Cupples, R.; Suggs, S.V.; Bacus, S.S.; Luo, Y.; Trall, G.; Hu, S.;
Cell 69, 559-572, 1992
A:Title: New differentiation factor: a transmembrane glycoprotein containing an EGF domain
A:Reference number: A38220; MUID:92257596; PMID:1349853
A:Accession: A38220
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-422 <MEN>
A:Note: sequence extracted from NCBI backbone (NCBIN:101767, NCBIPI:101768)
C:Superfamily: human heregulin; EGF homology; immunoglobulin homology

Query Match 40.3%, Score 111.5, DB 2; Length 639;
Best Local Similarity 34.8%, Pred. No. 4e-05;
Matches 16; Conservative 13; Mismatches 16; Indels 1; Gaps 1;

Db 178 HLIKAEKEKTFVCVNGGECFVWKDLSNPSRYLCKQCPETGARCTE 223

RESULT 6

562676
heregulin isoform alpha 2 - human (fragments)
N:Alternate names: differentiation factor neu isoform alpha 2
C:Species: Homo sapiens (man)
C:Date: 28-Oct-1996 #sequence_revision 13-Mar-1997 #text_change 08-Sep-2002
C:Accession: S62676
R:Hara, S.; Liu, N.; Meng, S.Y.; Lu, H.S.
Biochim. Biophys. Acta 1992, 168 176, 1996
A:Title: Isolation and structural characterization of recombinant human neu differentiation
A:Reference number: S62676; MUID:96139341; PMID:8547341
A:Accession: S62676
A:Status: preliminary
A:Molecule type: protein

A:Residues: 1-6;7-16;17-30;31-38;39-58;59-92;93-120;121-125 <HAR>
C:Superfamily: human heregulin; EGF homology; immunoglobulin homology
C:Keywords: proto-oncogene

Query Match 38.1%; Score 105.5; DB 2; Length 125;
Best Local Similarity 32.6%; Pred. No. 4.8e-05;
Matches 15; Conservative 14; Mismatches 16; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDECFVIEITLTGSHKH-CRCKEGYGVRCDOFL 45
Db 75 HLKCAKEKTFVNGGECFVMDLSPNSRYLCKCPNEFTGDRCONV 120

RESULT 7

neu differentiation factor - human (fragment)

C:Species: Homo sapiens (man)
C:Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 08-Sep-2002

C:Accession: S32359
R:Marchionni, M.A.; Goodheart, A.D.J.; Chen, M.S.; Birmingham-McDonogh, O.; Kirk, C.; Hen
N:Title: Structural and functional aspects of the multiplicity of Neu differentiation fa

A:Reference number: A56210; MUID:94158863; PMID:7509448
A:Accession: S32359

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Residues: 1-175 <RES>

A:Cross-references: EMBL:U02330; NID:9408410; PIDN:AAA19955.1; PID:9408411

C:Superfamily: human heregulin; EGF homology; immunoglobulin homology
F:116-155/Domain: EGF homology <EGF>

Query Match 37.7%; Score 104.5; DB 2; Length 175;
Best Local Similarity 31.2%; Pred. No. 8.3e-05;
Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDECFVIEITLTGSHKH-CRCKEGYGVRCDOFL 47
Db 112 HLKCAKEKTFVNGGECFVMDLSPNSRYLCKCPNEFTGDRCONV 159

RESULT 8

D43273

heregulin precursor, splice form beta-3 - human

N:Alternate names: glial growth factor HRG-beta-3; neurogulin

C:Species: Homo sapiens (man)
C:Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 09-Jul-2004

C:Accession: D43273; S32358
R:Holmes, W.E.; Sliwkowski, M.X.; Akita, R.W.; Henzel, W.J.; Lee, J.; Park, J.W.; Yansu
Science 256, 1205-1210, 1992

A:Title: Identification of heregulin, a specific activator of p185(erbB2).
A:Reference number: A43273; MUID:92271253; PMID:1350381

A:Accession: D43273

A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra

A:Molecule type: mRNA

A:Residues: 1-241 <HOL>
A:Cross-references: UNIPROT:Q02297

R:Marchionni, M.A.; Goodheart, A.D.J.; Chen, M.S.; Birmingham-McDonogh, O.; Kirk, C.; Hen
N:Title: Glial growth factors are alternatively spliced erbB2 ligands expressed in the r

A:Reference number: S32357; MUID:93205115; PMID:8096067

A:Accession: S32358
A:Molecule type: mRNA

A:Residues: 1-241 <MAR>
A:Cross-references: GB:L12261; NID:9292049; PIDN:AA59358.1; PID:9292050

C:Keywords: alternative splicing
F:182-221/Domain: EGF homology <EGF>

Query Match 37.7%; Score 104.5; DB 2; Length 241;
Best Local Similarity 31.2%; Pred. No. 0.00011;
Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDECFVIEITLTGSHKH-CRCKEGYGVRCDOFL 47
Db 178 HLKCAKEKTFVNGGECFVMDLSPNSRYLCKCPNEFTGDRCONV 225

RESULT 9

S32359

glial growth factor - bovine

C:Species: Bos primigenius taurus (cattle)
C:Date: 19-Mar-1997 #sequence_revision 01-Aug-1997 #text_change 09-Jul-2004

C:Accession: S32359
R:Marchionni, M.A.; Goodheart, A.D.J.; Chen, M.S.; Birmingham-McDonogh, O.; Kirk, C.; Hen
N:Title: Structural and functional aspects of the multiplicity of Neu differentiation fa

A:Reference number: A56210; MUID:94158863; PMID:7509448
A:Accession: S32359

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Residues: 1-241 <MAR>

A:Cross-references: UNIPROT:Q07112; GB:L12259; NID:9289413; PIDN:AAA30540.1; PID:9289414

C:Superfamily: human heregulin; EGF homology; immunoglobulin homology
F:182-221/Domain: EGF homology <EGF>

Query Match 37.7%; Score 104.5; DB 2; Length 241;
Best Local Similarity 31.2%; Pred. No. 0.00011;
Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDECFVIEITLTGSHKH-CRCKEGYGVRCDOFL 47
Db 178 HLKCAKEKTFVNGGECFVMDLSPNSRYLCKCPNEFTGDRCONV 225

RESULT 10

A56943

sensory/motor neuron-derived factor - human

C:Species: Homo sapiens (man)
C:Date: 18-Aug-1995 #sequence_revision 18-Aug-1995 #text_change 09-Jul-2004

C:Accession: A56943
R:Ho, W.H.; Armanini, M.P.; Nijens, A.; Phillips, H.S.; Osheroff, P.L.

A:Title: Sensory and motor neuron-derived factor. A novel heregulin variant highly expres

A:Reference number: A56943; MUID:95301541; PMID:7782315

A:Accession: A56943

A:Status: preliminary; not compared with conceptual translation

A:Molecule type: mRNA

A:Residues: 1-296 <HOA>
A:Cross-references: UNIPROT:Q15491; GB:L41827; NID:9862422; PIDN:AA41764.1; PID:9862423

C:Superfamily: human heregulin; EGF homology; immunoglobulin homology
F:237-276/Domain: EGF homology <EGF>

Query Match 37.7%; Score 104.5; DB 2; Length 296;
Best Local Similarity 31.2%; Pred. No. 0.00013;
Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDECFVIEITLTGSHKH-CRCKEGYGVRCDOFL 47
Db 233 HLKCAKEKTFVNGGECFVMDLSPNSRYLCKCPNEFTGDRCONV 280

RESULT 11
S32357
glial growth factor - human

C:Species: Homo sapiens (man)
C:Date: 02-Dec-1993 #sequence_revision 10-Nov-1995 #text_change 08-Sep-2002

C:Accession: S32357
R:Marchionni, M.A.; Goodheart, A.D.J.; Chen, M.S.; Birmingham-McDonogh, O.; Kirk, C.; Hen
N:Title: Glial growth factors are alternatively spliced erbB2 ligands expressed in the r

A:Reference number: S32357; MUID:93205115; PMID:8096067

A/Title: Glial growth factors are alternatively spliced erbB2 ligands expressed in the h
A/Reference number: S32357; MUID:93205115; PMID:8096067
A/Accession: S32357
A/Status: preliminary
A/Molecule type: mRNA
A/Residues: 1-422 <MAR>
A/Cross-references: GB:U12260; NID:9292047; PIDN:AA59622.1; PID:9292048
C/Superfamily: human heregulin; EGF homology; immunoglobulin homology
F:363-402/Domain: EGF homology <EGF>

Query Match 37.7%; Score 104.5; DB 2; Length 422;
Best Local Similarity 31.2%; Pred. No. 0.00018;
Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDGECFVETLTGSHK-CRCKEGYGVRCDOFL 47
Db 359 HLVKCAEKETFCVNGGECFVWYKDLNPSRYLCKCPNEFTGRCQNYV 406

RESULT 12
C43273
heregulin precursor, splice form beta-2 - human
C/Species: Homo sapiens (man)
C/Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 08-Sep-2002
C/Accession: C43273; 138407
R/Holmes, W.E.; Sliwkowski, M.X.; Akita, R.W.; Henzel, W.J.; Lee, J.; Park, J.W.; Yansur
Science 256, 1205-1210, 1992
A/Title: Identification of heregulin, a specific activator of p185(erbB2).
A/Reference number: A43273; MUID:92271253; PMID:1350381
A/Accession: C43273
A/Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra
A/Molecule type: mRNA
A/Residues: 1-637 <HOL>
R/Wen, D.; Sugge, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A/Title: Structural and functional aspects of the multiplicity of Neu differentiation fa
A/Reference number: A56210; MUID:9415863; PMID:7509448
A/Accession: 138407
A/Status: preliminary; translated from GB/EMBL/DBJ
A/Molecule type: mRNA
A/Residues: 119-406 <RES>
A/Cross-references: EMBL:U02329; NID:9408408; PIDN:AAA19954.1; PID:9408409
C/Genetics:
A/Genes: GDB:HGL
A/Cross-references: GDB:132656; OMIM:142445
A/Map position: 8p22-8p11
C/Superfamily: human heregulin; EGF homology; immunoglobulin homology
C/Keywords: alternative splicing
F:182-221/Domain: EGF homology <EGF>

Query Match 37.7%; Score 104.5; DB 2; Length 637;
Best Local Similarity 31.2%; Pred. No. 0.00025;
Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDGECFVETLTGSHK-CRCKEGYGVRCDOFL 47
Db 178 HLVKCAEKETFCVNGGECFVWYKDLNPSRYLCKCPNEFTGRCQNYV 225

RESULT 13
B43273
heregulin, splice form beta 1 - human
C/Species: Homo sapiens (man)
C/Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 09-Jul-2004
C/Accession: B43273; 138406
R/Holmes, W.E.; Sliwkowski, M.X.; Akita, R.W.; Henzel, W.J.; Lee, J.; Park, J.W.; Yansur
Science 256, 1205-1210, 1992
A/Title: Identification of heregulin, a specific activator of p185(erbB2).
A/Reference number: A43273; MUID:92271253; PMID:1350381
A/Accession: B43273
A/Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra
A/Molecule type: mRNA
A/Residues: 1-645 <HOL>

A/Cross-references: UNIPROT:Q02297
R/Wen, D.; Sugge, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A/Title: Structural and functional aspects of the multiplicity of Neu differentiation fac
A/Reference number: A56210; MUID:9415863; PMID:7509448
A/Accession: 138406
A/Status: preliminary; translated from GB/EMBL/DBJ
A/Molecule type: mRNA
A/Residues: 'A',95-418,'F',420-645 <RES>
A/Cross-references: EMBL:U02328; NID:9408406; PIDN:AAA19953.1; PID:9408407
C/Genetics:
A/Genes: GDB:HGL
A/Cross-references: GDB:132656; OMIM:142445
A/Map position: 8p22-8p11
C/Superfamily: human heregulin; EGF homology; immunoglobulin homology
C/Keywords: alternative splicing
F:182-221/Domain: EGF homology <EGF>

Query Match 37.7%; Score 104.5; DB 2; Length 645;
Best Local Similarity 31.2%; Pred. No. 0.00025;
Matches 15; Conservative 14; Mismatches 18; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDGECFVETLTGSHK-CRCKEGYGVRCDOFL 47
Db 178 HLVKCAEKETFCVNGGECFVWYKDLNPSRYLCKCPNEFTGRCQNYV 225

RESULT 14
A56210
neu differentiation factor - rat (fragment)
C/Species: Rattus norvegicus (Norway rat)
C/Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 08-Sep-2002
C/Accession: A56210
R/Wen, D.; Sugge, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A/Title: Structural and functional aspects of the multiplicity of Neu differentiation fac
A/Reference number: A56210; MUID:9415863; PMID:7509448
A/Accession: A56210
A/Status: preliminary; translated from GB/EMBL/DBJ
A/Molecule type: mRNA
A/Residues: 1-230 <RES>
A/Cross-references: EMBL:U02315; NID:9408380; PIDN:AAA19940.1; PID:9408381
C/Superfamily: human heregulin; EGF homology; immunoglobulin homology

Query Match 37.0%; Score 102.5; DB 2; Length 230;
Best Local Similarity 31.2%; Pred. No. 0.00018;
Matches 15; Conservative 13; Mismatches 19; Indels 1; Gaps 1;

Qy 1 HFKPCRDKLAYCLNDGECFVETLTGSHK-CRCKEGYGVRCDOFL 47
Db 167 HLVKCAEKETFCVNGGECFVWYKDLNPSRYLCKCPNEFTGRCQNYV 214

RESULT 15
I61718
neu differentiation factor - rat
C/Species: Rattus norvegicus (Norway rat)
C/Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change 09-Jul-2004
C/Accession: I61718; 161721; 161720
R/Wen, D.; Sugge, S.V.; Karunagaran, D.; Liu, N.; Cupples, R.L.; Luo, Y.; Janssen, A.M.;
Mol. Cell. Biol. 14, 1909-1919, 1994
A/Title: Structural and functional aspects of the multiplicity of Neu differentiation fac
A/Reference number: A56210; MUID:9415863; PMID:7509448
A/Accession: I61718
A/Status: preliminary; translated from GB/EMBL/DBJ
A/Molecule type: mRNA
A/Residues: 1-636 <RES>
A/Cross-references: UNIPROT:P43322; EMBL:U02318; NID:9408386; PIDN:AAA19943.1; PID:9408386
A/Accession: I61721
A/Status: preliminary; translated from GB/EMBL/DBJ
A/Molecule type: mRNA
A/Residues: 1-444,'A',446-636 <RES>
A/Cross-references: EMBL:U02321; NID:9408392; PIDN:AAA19946.1; PID:9408393

A:Accession: I61720
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-298,386,'V',388,'TR',391 <RE3>
 A:Cross-references: EMBL:U02320; NID:G408390; PIDN:AA1945.1; PID:G408391
 C:Superfamily: human heregulin; EGF homology; immunoglobulin homology
 F:182-221/Domain: EGF homology <EGF>

Query Match 37.0%; Score 102.5; DB 2; Length 636;
 Best Local Similarity 31.2%; Pred. No. 0.00042;
 Matches 15; Conservative 13; Mismatches 19; Indels 1; Gaps 1;

OY 1 HFPCRDKDLAYCINDGECFVIEITLTGSHK-CRCKEGVCGVRCDOFL 47
 Db 178 HLIKCAEKKEKTFCTVNGGECFTVXKDLNSPSRYLCKPNEFTGDRCONV 225

Search completed: May 4, 2005, 12:07:50
 Job time : 40 secs

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: May 4, 2005, 12:07:13 ; Search time 133 Seconds
(without alignments)
117.714 Million cell updates/sec

Title: US-09-107-979-4
Perfect score: 277
Sequence: 1 HFKRCKDKLALYCLNDECF.....SHKRCRKEGYGVRCDFL 47

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1426032 seqs, 333106140 residues

Total number of hits satisfying chosen parameters: 1426032

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :

Published Applications AA:*
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10: /cgn2_6/ptodata/1/pubppa/US09B_PUBCOMB.pep:*
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20: /cgn2_6/ptodata/1/pubppa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
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2	277	100.0	47	9	US-09-817-647-8
3	277	100.0	47	9	US-09-877-665-4
4	277	100.0	47	9	US-09-877-665-8
5	277	100.0	47	13	US-10-136-573A-4
6	277	100.0	47	13	US-10-136-573A-8
7	277	100.0	47	14	US-10-215-862-4
8	277	100.0	47	14	US-10-215-862-8
9	277	100.0	47	17	US-10-944-116-4
10	277	100.0	47	17	US-10-944-116-8
11	277	100.0	48	16	US-10-240-411-6
12	277	100.0	157	15	US-10-609-370-2
13	277	100.0	360	9	US-09-817-647-7

14	277	100.0	360	9	US-09-877-665-7	Sequence 7, Appl1
15	277	100.0	360	13	US-10-136-573A-7	Sequence 7, Appl1
16	277	100.0	360	14	US-10-215-862-7	Sequence 7, Appl1
17	277	100.0	360	14	US-10-944-116-7	Sequence 7, Appl1
18	277	100.0	362	9	US-09-817-647-3	Sequence 3, Appl1
19	277	100.0	362	9	US-09-877-665-3	Sequence 3, Appl1
20	277	100.0	362	13	US-10-136-573A-3	Sequence 3, Appl1
21	277	100.0	362	13	US-10-215-862-3	Sequence 3, Appl1
22	277	100.0	362	17	US-10-944-116-3	Sequence 3, Appl1
23	277	100.0	696	9	US-09-817-647-23	Sequence 23, Appl1
24	277	100.0	696	9	US-09-877-665-23	Sequence 23, Appl1
25	277	100.0	696	13	US-10-136-573A-23	Sequence 23, Appl1
26	277	100.0	696	13	US-10-215-862-23	Sequence 23, Appl1
27	277	100.0	696	14	US-10-215-862-23	Sequence 23, Appl1
28	277	100.0	713	17	US-10-944-116-23	Sequence 23, Appl1
29	277	100.0	713	9	US-09-817-647-6	Sequence 2, Appl1
30	277	100.0	713	9	US-09-877-665-2	Sequence 2, Appl1
31	277	100.0	713	13	US-10-136-573A-2	Sequence 2, Appl1
32	277	100.0	713	14	US-10-215-862-2	Sequence 2, Appl1
33	277	100.0	713	17	US-10-944-116-2	Sequence 2, Appl1
34	277	100.0	720	9	US-09-817-647-6	Sequence 6, Appl1
35	277	100.0	720	9	US-09-877-665-6	Sequence 6, Appl1
36	277	100.0	720	13	US-10-136-573A-6	Sequence 6, Appl1
37	277	100.0	720	14	US-10-215-862-6	Sequence 6, Appl1
38	277	100.0	720	15	US-10-609-370-22	Sequence 22, Appl1
39	277	100.0	720	17	US-10-944-116-6	Sequence 22, Appl1
40	277	100.0	720	9	US-09-817-647-14	Sequence 14, Appl1
41	277	100.0	720	9	US-09-877-665-14	Sequence 14, Appl1
42	277	100.0	720	13	US-10-136-573A-14	Sequence 14, Appl1
43	277	100.0	720	14	US-10-215-862-14	Sequence 14, Appl1
44	277	100.0	720	17	US-10-944-116-14	Sequence 14, Appl1
45	277	100.0	720	13	US-10-096-241-12	Sequence 12, Appl1
				15	US-10-609-370-17	Sequence 17, Appl1

ALIGNMENTS

RESULT 1
US-09-817-647-4
Sequence 4, Application US/09817647
Patent No. US20020082229A1
GENERAL INFORMATION:
APPLICANT: Goddard, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: FcBb Receptor-Specific Neuregulin Related Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESSES:
ADDRESS: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Winpatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/817,647
FILING DATE: 26-Mar-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 09/107,979
FILING DATE: <Unknown>
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1-2
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 4:

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; SEQUENCE CHARACTERISTICS:
; LENGTH: 47 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
;
; FEATURE:
; NAME/KEY: NR3 EGF-like domain/amino acid seq.
; LOCATION: 1-47
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 4:
US-09-817-647-4
;
Query Match 100.0%; Score 277; DB 9; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVIEITLTGSHKRCRCCKEGYGVRCDOFL 47
Db 1 HFKPCRDKDLAYCLNDGECFVIEITLTGSHKRCRCCKEGYGVRCDOFL 47

RESULT 2
US-09-817-647-8
; Sequence 8, Application US/09817647
; Patent No. US20020082229A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/817,647
; FILING DATE: 26-Mar-2001
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 09/107,979
; FILING DATE: <Unknown>
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1-2
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 8:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 47 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
;
; FEATURE:
; NAME/KEY: NR3 EGF-like domain/amino acid seq.
; LOCATION: 1-47
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 8:
US-09-817-647-8
;
Query Match 100.0%; Score 277; DB 9; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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QY 1 HFKPCRDKDLAYCLNDGECFVIEITLTGSHKRCRCCKEGYGVRCDOFL 47
Db 1 HFKPCRDKDLAYCLNDGECFVIEITLTGSHKRCRCCKEGYGVRCDOFL 47

RESULT 3
US-09-877-665-4
; Sequence 4, Application US/09877665
; Patent No. US20020164680A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/877,665
; FILING DATE: 08-Jun-2001
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/09/109,206
; FILING DATE: 30-Jun-1998
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1-1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 47 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
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; FEATURE:
; NAME/KEY: NR3 EGF-like domain/amino acid seq.
; LOCATION: 1-47
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 4:
US-09-877-665-4
;
Query Match 100.0%; Score 277; DB 9; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVIEITLTGSHKRCRCCKEGYGVRCDOFL 47
Db 1 HFKPCRDKDLAYCLNDGECFVIEITLTGSHKRCRCCKEGYGVRCDOFL 47

RESULT 4
US-09-877-665-8
; Sequence 8, Application US/09877665
; Patent No. US20020164680A1
; GENERAL INFORMATION:
; APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
; TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
; Ligands and Uses Therefor
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Genentech, Inc.
; STREET: 1 DNA Way
; CITY: South San Francisco
; STATE: California
; COUNTRY: USA
; ZIP: 94080
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WinPatIn (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/877,665
; FILING DATE: 08-Jun-2001
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/09/109,206
; FILING DATE: 30-Jun-1998
; ATTORNEY/AGENT INFORMATION:
; NAME: Conley, Deirdre L.
; REGISTRATION NUMBER: 36,487
; REFERENCE/DOCKET NUMBER: P1084R1-1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 650/225-2066
; TELEFAX: 650/952-9881
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 47 amino acids
; TYPE: Amino Acid
; TOPOLOGY: Linear
;
; FEATURE:
; NAME/KEY: NR3 EGF-like domain/amino acid seq.
; LOCATION: 1-47
; IDENTIFICATION METHOD:
; OTHER INFORMATION:
; SEQUENCE DESCRIPTION: SEQ ID NO: 4:
US-09-877-665-8
;
Query Match 100.0%; Score 277; DB 9; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
- MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Winpatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/877,665
FILING DATE: 08-Jun-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/09/109,206
FILING DATE: 30-Jun-1998
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Delandre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1-1
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 47 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: NR3 EGF-like domain/amino acid seq.
LOCATION: 1-47
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OTHER INFORMATION:
SEQUENCE DESCRIPTION: SEQ ID NO: 8:
US-09-877-665-8
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Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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Db 1 HFPCRDKDLAYCLNDECFVIEITLTGSHKRCCKEGYQGVRCDFL 47
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US-10-136-573A-4
Sequence 4, Application US/10136573A
Publication No. US20020161200A1
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J.
APPLICANT: Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and
FILE REFERENCE: P1084R1C2
CURRENT APPLICATION NUMBER: US/10/136,573A
PRIOR FILING DATE: 2002-04-29
PRIOR APPLICATION NUMBER: US 09/480,977
PRIOR FILING DATE: 2000-01-11
PRIOR APPLICATION NUMBER: US 08/899,437
PRIOR FILING DATE: 1997-07-24
PRIOR APPLICATION NUMBER: US 60/052,019
PRIOR FILING DATE: 1997-07-09
NUMBER OF SEQ ID NOS: 23
SEQ ID NO 4
LENGTH: 47
TYPE: PRT
ORGANISM: Homo sapiens
US-10-136-573A-4
Query Match 100.0%; Score 277; DB 13; Length 47;

Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 1 HFPCRDKDLAYCLNDECFVIEITLTGSHKRCCKEGYQGVRCDFL 47
Db 1 HFPCRDKDLAYCLNDECFVIEITLTGSHKRCCKEGYQGVRCDFL 47
RESULT 6
US-10-136-573A-8
Sequence 8, Application US/10136573A
Publication No. US20020161200A1
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J.
APPLICANT: Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and
FILE REFERENCE: P1084R1C2
CURRENT APPLICATION NUMBER: US/10/136,573A
CURRENT FILING DATE: 2002-04-29
PRIOR APPLICATION NUMBER: US 09/480,977
PRIOR FILING DATE: 2000-01-11
PRIOR APPLICATION NUMBER: US 08/899,437
PRIOR FILING DATE: 1997-07-24
PRIOR APPLICATION NUMBER: US 60/052,019
PRIOR FILING DATE: 1997-07-09
NUMBER OF SEQ ID NOS: 23
SEQ ID NO 8
LENGTH: 47
TYPE: PRT
ORGANISM: Homo sapiens
US-10-136-573A-8
Query Match 100.0%; Score 277; DB 13; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 1 HFPCRDKDLAYCLNDECFVIEITLTGSHKRCCKEGYQGVRCDFL 47
Db 1 HFPCRDKDLAYCLNDECFVIEITLTGSHKRCCKEGYQGVRCDFL 47
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US-10-215-862-4
Sequence 4, Application US/10215862
Publication No. US20030036166A1
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J.
APPLICANT: Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and
FILE REFERENCE: P1084R1D2C1
CURRENT APPLICATION NUMBER: US/10/215,862
CURRENT FILING DATE: 2002-09-24
PRIOR APPLICATION NUMBER: US 09/126,663
PRIOR FILING DATE: 1998-07-30
PRIOR APPLICATION NUMBER: US 08/899,437
PRIOR FILING DATE: 1997-07-24
PRIOR APPLICATION NUMBER: US 60/052,019
PRIOR FILING DATE: 1997-07-09
NUMBER OF SEQ ID NOS: 23
SEQ ID NO 4
LENGTH: 47
TYPE: PRT
ORGANISM: Homo sapiens
US-10-215-862-4
Query Match 100.0%; Score 277; DB 14; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDOFL 47
DB 1 HFKPCRDKDLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDOFL 47

RESULT 8

US-10-215-862-8
Sequence 8, Application US/10215862
Publication No. US20030036166A1
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J.
APPLICANT: Mark, Melanie Rose
APPLICANT: Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and
TITLE OF INVENTION: Uses Therefor
FILE REFERENCE: P1084R1D2C1
CURRENT APPLICATION NUMBER: US/10/215,862
CURRENT FILING DATE: 2002-09-24
PRIOR APPLICATION NUMBER: US 09/126,663
PRIOR FILING DATE: 1998-07-30
PRIOR APPLICATION NUMBER: US 08/899,437
PRIOR FILING DATE: 1997-07-24
PRIOR APPLICATION NUMBER: US 60/052,019
PRIOR FILING DATE: 1997-07-09
NUMBER OF SEQ ID NOS: 23
SEQ ID NO 8
LENGTH: 47
TYPE: PRT
ORGANISM: Homo sapiens
US-10-215-862-8

Query Match 100.0%; Score 277; DB 14; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDOFL 47
DB 1 HFKPCRDKDLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDOFL 47

US-10-944-116-4
Sequence 4, Application US/10944116
Publication No. US20050048622A1
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J.
APPLICANT: Mark, Melanie Rose
APPLICANT: Zhang, Dong Xiao

TITLE OF INVENTION: ErbB4 Receptor-Specific Neuregulin Related
Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/944,116
FILING DATE: 17-Sep-2004
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 09/877665
FILING DATE: 08-JUN-2001
APPLICATION NUMBER: 09/109206
FILING DATE: 30-JUN-1998
APPLICATION NUMBER: 60/052019

FILING DATE: 09-JUL-1997
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1-1C2
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 47 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: NRG3 EGF-like domain/amino acid seq.
LOCATION: 1-47
IDENTIFICATION METHOD:
OTHER INFORMATION:
SEQUENCE DESCRIPTION: SEQ ID NO: 4:
US-10-944-116-4

Query Match 100.0%; Score 277; DB 17; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFKPCRDKDLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDOFL 47
DB 1 HFKPCRDKDLAYCLNDGECFVETLTGSHKRCCKEGYGVRCDOFL 47

RESULT 10

US-10-944-116-8
Sequence 8, Application US/10944116
Publication No. US20050048622A1
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J.
APPLICANT: Mark, Melanie Rose
APPLICANT: Zhang, Dong Xiao

TITLE OF INVENTION: ErbB4 Receptor-Specific Neuregulin Related
Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080

COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/944,116
FILING DATE: 17-Sep-2004
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 09/877665
FILING DATE: 08-JUN-2001
APPLICATION NUMBER: 09/109206
FILING DATE: 30-JUN-1998
APPLICATION NUMBER: 60/052019
FILING DATE: 09-JUL-1997
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1-1C2
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:

LENGTH: 47 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: NR3 EGF-like domain/amino acid seq.
LOCATION: 1-47
IDENTIFICATION METHOD:
OTHER INFORMATION:
SEQUENCE DESCRIPTION: SEQ ID NO: 8
US-10-944-116-8

Query Match 100.0%; Score 277; DB 17; Length 47;
Best Local Similarity 100.0%; Pred. No. 4.3e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HFKPCRDKLAYCLNDGECFVIEITLTGSHKRCCKEGYQGVRCDOFL 47
Db 1 HFKPCRDKLAYCLNDGECFVIEITLTGSHKRCCKEGYQGVRCDOFL 47

RESULT 11
US-10-240-411-6
Sequence 6, Application US/10240411
Publication No. US20040121326A1
GENERAL INFORMATION:
APPLICANT: Harari, Daniel
TITLE OF INVENTION: NOVEL GROWTH FACTOR WHICH ACTS THROUGH ERB B-4 RECEPTOR TYROSINE
FILE REFERENCE: 01/21918
CURRENT APPLICATION NUMBER: US/10/240,411
CURRENT FILING DATE: 2003-05-16
PRIOR APPLICATION NUMBER: US 09/553,769
PRIOR FILING DATE: 2000-04-21
NUMBER OF SEQ ID NOS: 20
SOFTWARE: PatentIn version 3.0
SEQ ID NO 6
LENGTH: 48
TYPE: PRT
ORGANISM: Mus musculus
US-10-240-411-6

Query Match 100.0%; Score 277; DB 16; Length 48;
Best Local Similarity 100.0%; Pred. No. 4.4e-26;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HFKPCRDKLAYCLNDGECFVIEITLTGSHKRCCKEGYQGVRCDOFL 47
Db 2 HFKPCRDKLAYCLNDGECFVIEITLTGSHKRCCKEGYQGVRCDOFL 48

RESULT 12
US-10-609-370-2
Sequence 2, Application US/10609370
Publication No. US20040048295A1
GENERAL INFORMATION:
APPLICANT: Young et al.
TITLE OF INVENTION: Heregulin-like Factor
FILE REFERENCE: PF383D1
CURRENT APPLICATION NUMBER: US/10/609,370
CURRENT FILING DATE: 2003-07-01
PRIOR APPLICATION NUMBER: 09/097,681
PRIOR FILING DATE: 1998-06-16
PRIOR APPLICATION NUMBER: 60/049,942
PRIOR FILING DATE: 1997-06-17
NUMBER OF SEQ ID NOS: 22
SOFTWARE: PatentIn version 3.2
SEQ ID NO 2
LENGTH: 157
TYPE: PRT
ORGANISM: Homo sapiens
US-10-609-370-2

Query Match 100.0%; Score 277; DB 15; Length 157;
Best Local Similarity 100.0%; Pred. No. 1.4e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HFKPCRDKLAYCLNDGECFVIEITLTGSHKRCCKEGYQGVRCDOFL 47
Db 31 HFKPCRDKLAYCLNDGECFVIEITLTGSHKRCCKEGYQGVRCDOFL 77

RESULT 13
US-09-817-647-7
Sequence 7, Application US/09817647
Patent No. US20020082229A1
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related
Ligands and Uses Therefor
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 1 DNA Way
CITY: South San Francisco
STATE: California
COUNTRY: USA
ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 MB floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: WinPatIn (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/817,647
FILING DATE: 26-Mar-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 09/107,979
FILING DATE: <Unknown>
ATTORNEY/AGENT INFORMATION:
NAME: Conley, Deirdre L.
REGISTRATION NUMBER: 36,487
REFERENCE/DOCKET NUMBER: P1084R1-2
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-2066
TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 360 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
FEATURE:
NAME/KEY: hNRG3 extracellular domain/Amino AcidSeq
LOCATION: 1-360
IDENTIFICATION METHOD:
OTHER INFORMATION:
SEQUENCE DESCRIPTION: SEQ ID NO: 7
US-09-817-647-7

Query Match 100.0%; Score 277; DB 9; Length 360;
Best Local Similarity 100.0%; Pred. No. 3.3e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HFKPCRDKLAYCLNDGECFVIEITLTGSHKRCCKEGYQGVRCDOFL 47
Db 286 HFKPCRDKLAYCLNDGECFVIEITLTGSHKRCCKEGYQGVRCDOFL 332

RESULT 14
US-09-877-665-7
Sequence 7, Application US/09877665
Patent No. US20020164680A1
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Mark, Melanie Rose, Zhang, Dong Xiao
TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related

Ligands and Uses Therefor

NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:

ADDRESSEE: Genentech, Inc.

STREET: 1 DNA Way

CITY: South San Francisco

STATE: California

COUNTRY: USA

ZIP: 94080

COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: WinPatIn (Genentech)

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/877,665

FILING DATE: 08-Jun-2001

CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/09/109,206

FILING DATE: 30-Jun-1998

ATTORNEY/AGENT INFORMATION:

NAME: Conley, Deirdre L.

REGISTRATION NUMBER: 36,487

TELECOMMUNICATION INFORMATION:

TELEPHONE: 650/952-2066

TELEFAX: 650/952-9881

INFORMATION FOR SEQ ID NO: 7:

SEQUENCE CHARACTERISTICS:

LENGTH: 360 amino acids

TYPE: Amino Acid

FEATURE:

NAME/KEY: hNRG3 extracellular domain/amino acidseq

LOCATION: 1-360

IDENTIFICATION METHOD:

OTHER INFORMATION:

SEQUENCE DESCRIPTION: SEQ ID NO: 7:

US-09-877-665-7

Query Match 100.0%; Score 277; DB 9; Length 360;
Best Local Similarity 100.0%; Pred. No. 3.3e-25;
Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFPCRDKDLAYCINDGECFVIEITLGSNKHCRCKEGYGVRCDFL 47

DB 286 HFPCRDKDLAYCINDGECFVIEITLGSNKHCRCKEGYGVRCDFL 332

US-10-136-573A-7
Sequence 7, Application US/10136573A
Publication No. US20020161200A1

GENERAL INFORMATION:

APPLICANT: Godowski, Paul J.

APPLICANT: Mark, Melanie Rose

APPLICANT: Zhang, Dong Xiao

TITLE OF INVENTION: ErbB Receptor-Specific Neuregulin Related Ligands and

FILE REFERENCE: P1084R1C2

CURRENT APPLICATION NUMBER: US/10/136,573A

CURRENT FILING DATE: 2002-04-29

PRIOR APPLICATION NUMBER: US 09/480,977

PRIOR FILING DATE: 2000-01-11

PRIOR APPLICATION NUMBER: US 08/899,437

PRIOR FILING DATE: 1997-07-24

PRIOR APPLICATION NUMBER: US 60/052,019

PRIOR FILING DATE: 1997-07-09

NUMBER OF SEQ ID NOS: 23

SEQ ID NO 7

LENGTH: 360

TYPE: PRT

ORGANISM: Homo sapiens
US-10-136-573A-7

Query Match 100.0%; Score 277; DB 13; Length 360;

Best Local Similarity 100.0%; Pred. No. 3.3e-25;

Matches 47; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HFPCRDKDLAYCINDGECFVIEITLGSNKHCRCKEGYGVRCDFL 47

DB 286 HFPCRDKDLAYCINDGECFVIEITLGSNKHCRCKEGYGVRCDFL 332

Search completed: May 4, 2005, 12:20:04
Job time : 134 secs